evoted to
EXTILE
HEMISTRY
EACHING
DYEING
RINTING
NISHING

BER 9, 1944
ME 33, No. 21

AMERICAN

DYESTUFF REPORTER

AL PUBLICATION
of the
ROCEEDINGS
CAN ASSOCIATION
EXTILE CHEMISTS
D COLORISTS

OCT 25 1944

BRIDGE FOR PROBLEMS

There is usually a time lag between [illegible] development and satisfactory commercial use. As new dyes gain classes, processing improvements and new fabrics appear, they bring new problems in dye application.

Proper selection and blending of dyes is not a problem for users or manufacturers of dyestuffs to work on alone. The job calls for cooperation—whether for solving present difficulties or for securing profitable advance solutions to the requirements of tomorrow. When problems arise, call on us for help. Our [illegible] will work to help bridge the gap between development and effective application in your plant. E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Division, Wilmington, Del., Delaware.

Du Pont Dyestuffs

DU PONT DYESTUFFS

DURABILITY

Crease-proof and Curable Resin Finished Goods demand dyestuffs with DURABILITY.

The ALTHOUSE CHEMICAL CO. has developed a complete line of DYES which become both LIGHT and WASH FAST with Urea-Formaldehyde and other curable resin finishes.

Let us demonstrate their superiority.

ALTHOUSE CHEMICAL CO.
READING PA.

More than a trade name.

A penetrant and levelling medium for direct, union, and CELANESE* dyes. Effective either for stripping or for level dyeing when working with many of the vat type dyes.

A stable, dispersing penetrant for rot-proof and mildewproof processing.

Economical and labor saving.

During the war LEVELENE* is proving of value in the processing of war goods.

During reconversion LEVELENE* can be of equally high value for stripping and re-dyeing surplus vat dyed and other war goods.

RATHER than ask for a laboratory sample —HAVE one of our technical men bring with him a sufficient quantity for a practical mill run THEN judge for yourself as many mills have done and profited thereby.

*Reg. U. S. Pat. Off.

AMERICAN ANILINE PRODUCTS, INC.
50 UNION SQUARE NEW YORK, N. Y.

— Dyestuffs —
Plant: Lock Haven, Pa.

BRANCHES

Providence, R.I.
171 Pine Street

Philadelphia, Pa.
210 N. 13th Street

Toronto, Can.
Dominion Anilines & Chemicals, Ltd.
265 Adelaide Street West

Boston, Mass
190 High Street

Chicago, Ill
820 South Clinton Street

Charlotte, N. C.
301 East Seventh Street

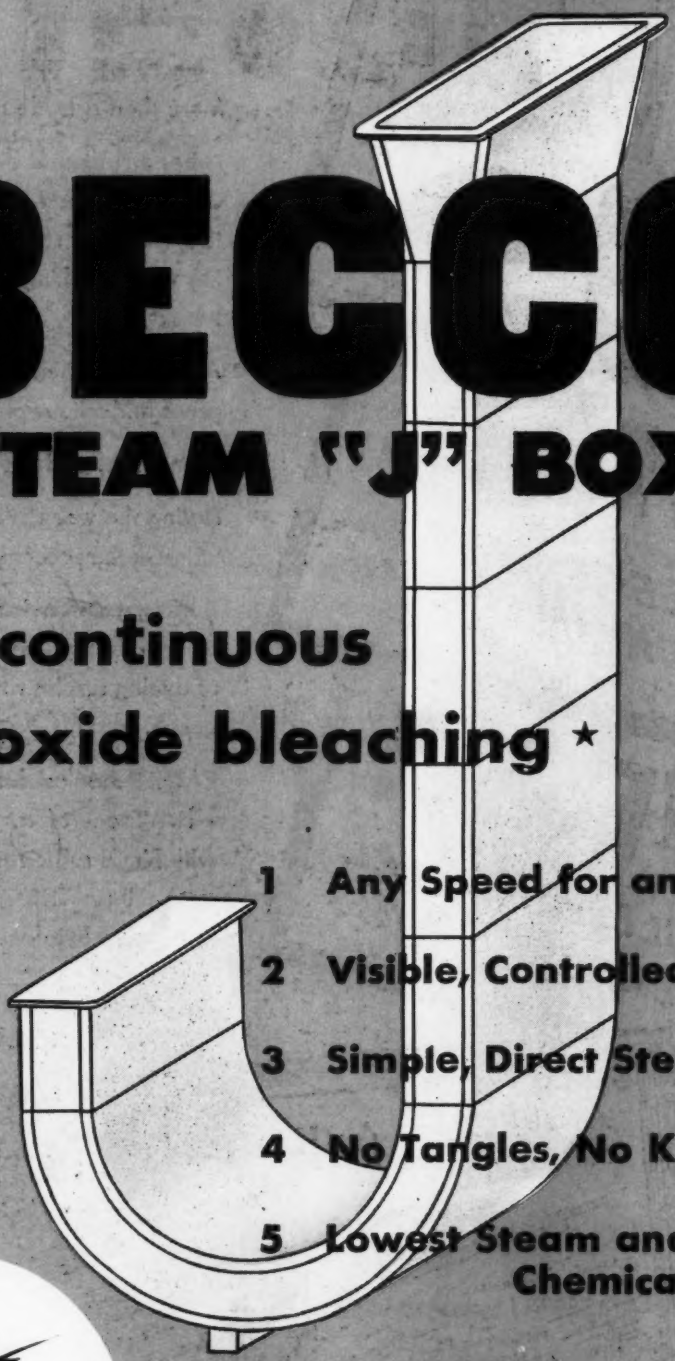
*Reg. U. S. Pat. Off.

Los Angeles, Cal. — 1019 South Grand Avenue

American Dyestuff Reporter, Vol. 33, No. 21, October 9, 1944. Published every other Monday. Copyright 1944, by Howes Publishing Co., 440 4th Ave., New York, 16, N. Y. Domestic subscriptions, $5.00; Canadian, $6.00; Foreign, $6.00. Entered as second-class matter, Nov. 6, 1919, at the New York, N. Y. Post Office, under the act of March 3, 1879.

The BECCO STEAM "J" BOX

for continuous peroxide bleaching ★



"Nothing Moves but the Cloth"

1 Any Speed for any Fabric

2 Visible, Controlled Piling

3 Simple, Direct Steam Heating

4 No Tangles, No Knots

5 Lowest Steam and Chemical Cost

BECCO SALES CORPORATION

Agents for Buffalo Electro Chemical Co., Inc.

Station B

Buffalo 7, N. Y.

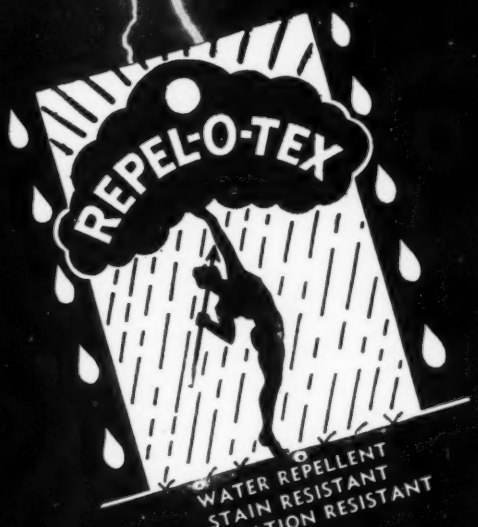
New York Boston Philadelphia Chicago Charlotte

★ Covered by U. S. and Foreign Patents

REPEL-O-TEX

THE SUPERIOR WATER REPELLENT

FOR EVERY
RAIN WEAR
GARMENT



onyx

ONYX OIL & CHEMICAL COMPANY
JERSEY CITY, N. J.

CHICAGO · PROVIDENCE · CHARLOTTE

IN CANADA: ONYX OIL & CHEMICAL CO., LTD.—MONTREAL · TORONTO · ST. JOHNS, QUE.

*Repel-O-Tex—Reg. U. S. Pat. Off.

PERKINS
HOLYOKE
TRADE MARK REG.

For the Textile Industry

Cotton Rolls
Cotton and Wool Rolls
Combination Rolls
Husk Rolls
Paper Rolls
Embossing Rolls
Friction Calenders
Schreiner Calenders
Chasing Calenders
Rolling Calenders

Silk Calenders
Embossing Calenders
Cloth Pilers
Drying Machines
Dye Jigs
Mangles
Padders
Squeezers
Washers
Winders

Mullen Testers

PALATINES

FOR *Wool*

A complete range of Acid Dyeing Colors... Fast to Light – Washing – Perspiration – Crocking – Sea Water and Wear... Level Dyeing on Mixed Wool and Carbonized Goods without neutralization – with excellent penetration. Most types are dischargeable with rongalite.

Palatine Fast Colors are particularly suitable for Men's Wear – Dress Goods – Gabardines – Tropical Worsteds – Cloakings – Bathing Suits – Knitting Yarns – Carpet Yarns and Tops.

Palatine Fast Colors offer the lowest coloring costs for quality results.

On Nylon Palatine Fast Colors give maximum fastness to Light and Washing. The method of application is simple and the results are excellent.

GENERAL DYESTUFF CORPORATION

435 HUDSON STREET · NEW YORK 14, N.Y.

BOSTON · PROVIDENCE · PHILADELPHIA · CHICAGO · CHARLOTTE · SAN FRANCISCO

Have you tried Olate for COLD SCOURING ?

Cold Scouring is regular practice with many processors of woolens and worsteds. Today, when fuel conservation is so vitally important, this time-tested process deserves the consideration of processors who never before have made use of it.

Much of your success with cold scouring will depend upon the soap you use. The widespread use of Olate for this operation is sound evidence that it has the necessary qualifications for scouring at low temperatures. Here's why:

OLATE SOLUTIONS STAY FLUID - EVEN AT 50° F.

Naturally, your soap solution must be unusually fluid in order to assure quick, thorough, even penetration of the fabric at low temperatures. Olate solutions stay fluid at temperatures as low as 50° F. Stay fluid, too, in high concentrations. Solutions containing as much as 12 ounces of Olate per gallon can be poured or piped readily.

OLATE SOLUTIONS INCORPORATE SOLVENTS READILY

It's easy to incorporate most solvents in your Olate scouring solution—another important advantage you get in using this pure, neutral, low titer soap.

OLATE RINSES FREELY

You'll see what an efficient cold scouring job Olate does the first time you try it. You'll discover another Olate advantage that's almost as important. You'll discover how easily Olate can be rinsed from scoured fabrics. And that's a big factor of safety in protecting your woolens and worsteds against the danger of objectionable odors from unrinsed soap left in the fibers.

•

If you're now using the cold scouring process—or if you are considering it—try Olate. From every standpoint—efficiency, economy, and the salability of your finished goods—there's no finer soap on the market.

Procter & Gamble

Olate *the universal textile soap*

Give a "SHEER" for Miss America

To lead the cheers or start them, every girl knows the importance of sheer, beautifully finished dull hosiery. She knows that there is a direct line between smartly sheathed feminine legs and fluttering masculine hearts. No matter how badly material shortages grow, she's going to hold that line.

To help hosiery makers and dyers with their difficult responsibility of glorifying the most beautiful legs in the world with all types of substitute material, our staff has been working "round-the-clock". The Fancourt mark is ready to place the results of this work and our thirty-seven years of experience at your service.

W. F. FANCOURT & CO.

Phila., Pa., Solving Finishing Problems Since 1904
In the South, Howard A. Virkler, Greensboro, N. C.

Model Kay Hanna, who could make any full-fledged fullback "do or die", knows how important well-groomed legs are on these autumn afternoons. Says Kay—"All women are models at heart and at football games you'll see them at their best. Because they want to gain and hold a personal cheering section, you'll find they are more meticulous than ever before in their hosiery purchasing".

CAMEL DYES

for Color Satisfaction

ACEKO (Acid) **AMIDINE** (Direct)

AMIDAZO (Develop) **KROMEKO** (Chrome)

LAVOSAL (Fast to Salt Water and Washing)

CAMACYL (For Acetate Rayons)

SOL-AMIDINE (Light-Fast, Direct)

ETHONIC (Level Dyeing Acid)

AMALTHION (Sulphur)

CHROMAZINE and **CHROMACID**

(Colors for Textile Printing)

JOHN CAMPBELL & COMPANY, INC.

75 HUDSON STREET • NEW YORK CITY

TELEPHONE: BArclay 7-6229-6229

PHILADELPHIA: BROAD AND SPRING GARDEN STS.

BOSTON BRANCH OFFICES AND WAREHOUSES: ATLANTA, GA.

EAST CLEVELAND, OHIO

Our POSTWAR WORLD STARTS *Today!*

• Many Hartex products are today important factors in the processing of newly-developed synthetic fibers. Our chemists, with an eye to future needs, are working on still other products which will help create *new* and *different* fabrics. . . . We are also developing new applications for those well-known processing-agents which have made "Hartex" history. . . . With readiness to serve in the era just at hand, there has been no let-up in our day-by-day interest in the requirements of your industry in a war world.

- *Consult us regarding your present problem*
- *Consult us regarding your postwar program*

HARTEX PRODUCTS

CARO-GANT: A perfectly balanced compound for cotton warp sizing. Contains no water, metallic salts or unsaponifiable fats.

KOPAN: A permanent cellulose finish suitable for sheets, rayons, marquisettes, damasks, shirtings and many types of knitted and woven fabrics.

PIGMENT COLORS: Special concentrates in all shades for use with KOPAN. Also special water-dispersed pigments for use with various binders for printing and dyeing.

DYPENOL: The ideal mercerizing penetrant. Completely eliminates boil-out or wet-out, with attendant savings in labor, steam and chemicals.

REPELON: A highly efficient single bath water-repellant agent; very stable, readily soluble. Meets government specifications for military fabrics.

CATYLON: A cation-active finishing agent which is permanent in its softening effects. Complete range of formulae to meet all special requirements.

HART PRODUCTS CORPORATION

Chemicals for Every Phase of Textile Processing

1440 BROADWAY • NEW YORK, N. Y.

HYDROSULFITE

OF SODA CONC.

• In war or peace—military or civilian fabrics—it's uniform, predictable *results* that count. That's why the consistent high strength and purity of Jacques Wolf Hydrosulfite of Soda Conc. are so highly approved by the country's leading plants for vat dyeing and color reduction.

It's *economical*—because less is needed and longer runs can be made without further addition. There's *less dusting*—granular uniformity keeps dusting to a minimum—less waste, easier handling. It has *high stability*—assured by careful laboratory control during every step of manufacture.

WOLF BRAND PRODUCTS

JACQUES WOLF & CO.

Chemicals PASSAIC, N. J.

OTHER PLANTS: CARLSTADT, N. J. • LOS ANGELES, CALIF.

WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Knoxville, Tenn.

Eastman Black SN *New*

Eastman Black SN New is a highly refined soluble dye base. Diazotized and developed with beta-oxy naphthoic acid, it dyes acetate rayon dense greenish shades of black which retain their cast under both daylight and artificial light.

When heated with direct steam, Black SN New will not tar in a water medium. It is highly recommended for cross dyeing since it stains viscose rayon and cotton only slightly. At low temperatures, it penetrates and levels well with good exhaustion of the dyestuff. Blacks obtained with this dye by either jig or box method meet general commercial fastness requirements and offer exceptional resistance to sublimation and crocking.

Eastman Acetate Dyestuffs are available in a wide variety of useful colors which have been especially developed for cellulose acetate rayon. For additional information on these dyestuffs and their application to synthetic fibers, write to TENNESSEE EASTMAN CORPORATION (Subsidiary of Eastman Kodak Company), KINGSPORT, TENNESSEE.

EASTMAN ACETATE DYESTUFFS

PLAN YOUR PLANT DRIVE NOW!

Good organization will be needed to sell the 6th. The task of raising the huge sum required will be the most difficult ever asked of Industry. As each new military success brings us closer to Victory, the public naturally will feel that the urgency of war financing is lessened—whereas it isn't. So organize now to prevent a letdown on the home-front from causing a letdown on the fighting front. Build your plant's payroll campaign around this fighting 8-Point Plan. You don't have to wait for the official Drive to start—swing into action NOW!

1 **BOND COMMITTEE**—Appoint a 6th War Loan Bond Committee from labor, management and each representative group of the firm.

2 **TEAM CAPTAINS**—Select a team captain, for each 10 workers, from men and women on the payroll—but not in a supervisory capacity. Returned veterans make most effective captains.

3 **QUOTA**—Set a quota for each department and each employee.

4 **MEETING OF CAPTAINS**—Give a powerful presentation of the importance of the work assigned to them. Instruct them in sales procedure. Have them carefully study the Treasury Booklet, *Getting the Order.*

5 **ASSIGNMENTS**—Assign responsibilities for:

(a) *Music, speeches and announcements of the opening rally.*
(b) *Pre-drive letter to employees from management and labor.*
(c) *Competitive progress boards.*
(d) *Meeting schedules, etc.*

6 **CARD FOR EACH WORKER**—Dignify each personal approach with a pledge, order, or authorization card made out in the name of each worker. Provide for a cash purchase or installment pledge. Instruct each captain to put a pencil notation on the card to indicate the subscription he expects to solicit from each worker.

7 **RESOLICITATION**—People don't mind being asked to buy more than once. Resolicit each employee toward the end of the drive in a fast mop-up campaign. Call upon your State Payroll Chairman; he's ready with a fully detailed plan—NOW!

8 **ADVERTISE THE DRIVE**—Use all possible space in the regular media you employ to tell the War Bond story.

The Treasury Department acknowledges with appreciation the publication of this message by

AMERICAN DYESTUFF REPORTER

This is an official U. S. Treasury advertisement prepared under the auspices of Treasury Department and War Advertising Council

DYED ACETATE RAYON! *finished with*

ARIPEL-FS

Reg. U.S. Pat. Office

Has Excellent Fastness to Atmospheric Gases

Yes, acetate rayon dyed fabrics treated with double-action ARIPEL-FS are remarkably resistant to the fading action of atmospheric gases as proven by the "Gas Chamber" test.

ARIPEL-FS is also an effective softener and therefore works two ways in a one bath treatment —

- **Increases the gas-resistance of the color.**
- **Imparts a soft, smooth pleasing finish.**

ARKANSAS CO. INC.

Manufacturers of Industrial Chemicals for over 40 Years

Newark, New Jersey

Wide Range of use is Big Feature of

Indigosol Golden Yellow IGK

THE present price of Indigosol Golden Yellow IGK makes possible the use of this very fast Indigosol for economical dyeing and printing operations.

In combination with Indigosol Green IBA, very fast green shades are now available to the printer and dyer for the first time at a very reasonable cost.

An excellent printing color on cotton and rayon, it is also of great interest to the dyer of cotton, rayon and wool.

In ease of application, the perfectly level shades obtained, and the unusually excellent penetration of heavy goods makes the entire line of INDIGOSOLS especially valuable to the fast color dyer or printer.

Brightness and Economy are Characteristics of

Pharmasol Golden Yellow N

PHARMASOL Golden Yellow N produces clear, bright, fast and economical golden yellow shades when printed on cottons or rayons.

When mixed with Pharmasol Scarlet GNN, or Pharmasol Red GNN, a complete range of Tangerine and Gold Shades can be obtained.

Low cost Browns are obtained by mixing with either Pharmasol Blue GNXX or with Pharmasol Blue GDNN.

PHARMASOLS are solutions of stabilized azoic dyes and adjusted to the most practical concentration which can be easily applied with a maximum of efficiency.

PHARMASOLS solve the problem of troublesome dissolving and the uncertainties thereof—and as there is no decomposition there can be no loss of material or value.

CARBIC COLOR AND CHEMICAL CO., INC.

451-453 Washington Street, New York City

BRANCHES:
PHILADELPHIA
PROVIDENCE HAMILTON, ONT.
CHARLOTTE, N. C.

IMPORTERS OF THE MANUFACTURES OF
DURAND & HUGUENIN S. A.
BASLE, SWITZERLAND

EXCLUSIVE DISTRIBUTORS OF
PHARMASOLS
PHARMOLS
PHARMACINES

Representative: Los Angeles (Hathaway Allied Products)

AMERICAN DYESTUFF REPORTER

A. P. HOWES
Publisher

LOUIS A. OLNEY, D.Sc
Directing Editor

NORMAN A. JOHNSON, B.T.C.
Managing Editor

MYRON D. REESER
Advertising Manager

Official Publication of the Proceedings of the American Association of Textile Chemists and Colorists

OCTOBER 9, 1944

VOLUME 33 NUMBER 21

American Dyestuff Reporter, Vol. 33, No. 21, October 9, 1944. Published every other Monday. Copyright, 1944, by Howes Publishing Co., 440 4th Ave., New York 16, N. Y. Domestic subscription, $5.00, Canadian, $6.00, Foreign, $6.00. Entered as second-class matter, Nov. 6, 1919, at the New York, N. Y., Post Office, under the act of March 3, 1879.

Contents

Contents of previous issues can be found by consulting the Industrial Art Index at your library

• Special Articles

Study of a Soil Burial Method for Determining Rot Resistance of Fabrics..... 423
D. M. Batson, Dorothea J. Teunisson and N. Porges

The Romance of Dyestuff Names..... 427
Wm. S. Huber

• Departments

Abstracts from Contemporary Journals..... 435

Trade Notes—New Products..... 435

Book Review 440

• Proceedings of the American Association of Textile Chemists and Colorists

Meeting of Southeastern Section..... P430

The Intersectional Contest..... P432

Coming Meetings, Northern New England Section P432

Saturday Afternoon Session, Annual Meeting.... P432

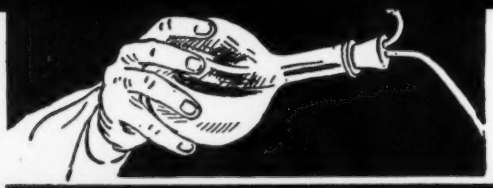
Membership Applications P432

Meeting, South Central Section..... P434

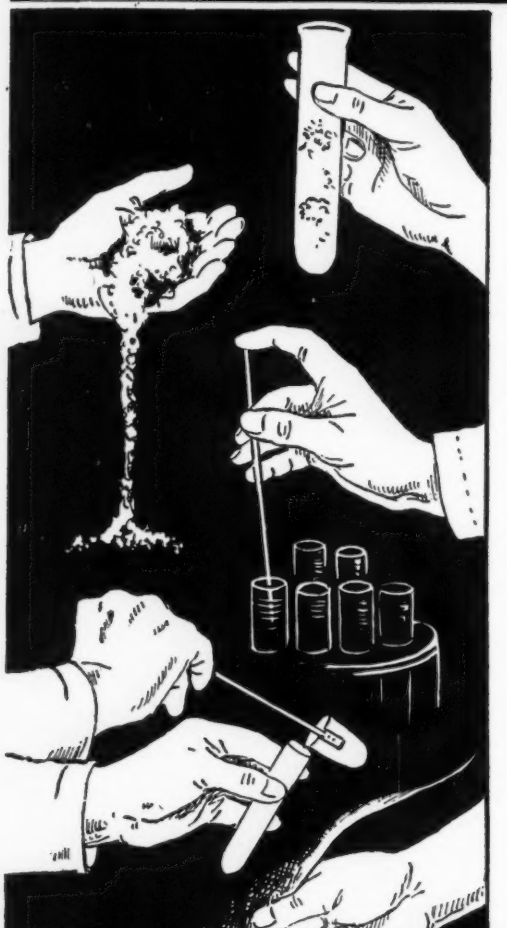
Calendar of Coming Events..... P434

Meeting, Philadelphia Section..... P434

Copyright, 1944, Howes Publishing Co., Inc.



NO ONE MAN CAN KNOW IT ALL



NATIONAL TECHNICAL SERVICE is founded on the simple truth that no one man can be expected to cope with every conceivable application of dyestuffs on every type of fiber and mixture.

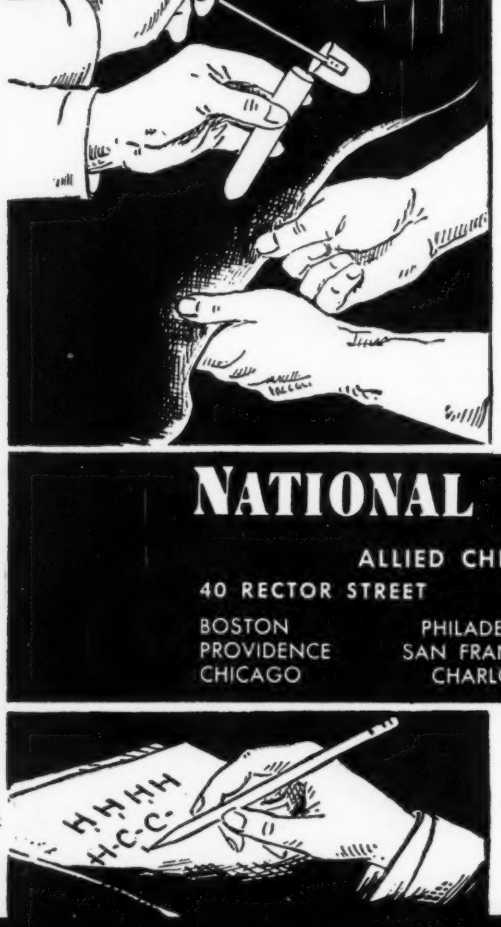
Despite wartime difficulties, *NATIONAL TECHNICAL SERVICE* is fully staffed with technicians of long and diversified experience in every field where color is used. We invite you to use the help of *NATIONAL TECHNICAL SERVICE* on your dyehouse problems.

NATIONAL ANILINE DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET — NEW YORK 6, N. Y.

BOSTON	PHILADELPHIA	GREENSBORO	CHATTANOOGA
PROVIDENCE	SAN FRANCISCO	ATLANTA	PORTLAND, ORE.
CHICAGO	CHARLOTTE	NEW ORLEANS	TORONTO



AMERICAN
DYESTUFF REPORTER

VOLUME 33 OCTOBER 9, 1944 NUMBER 21

Study of a SOIL-BURIAL METHOD for Determining Rot Resistance of Fabrics

D. M. BATSON, DOROTHEA J. TEUNISSON AND N. PORGES

Southern Regional Research Laboratory,[1] New Orleans, Louisiana

THE destructive action of microorganisms on fibers of vegetable origin has been long recognized and widely investigated. Although it is generally conceded that certain bacteria may cause fiber deterioration, most studies, until rather recently, have emphasized the role of fungi in attacking textile fabrics and other manufactured fiber products. This emphasis is to be expected since the conditions of humidity and exposure prevailing during ordinary usage of such materials usually favor infection and attack by fungi rather than by bacteria. Accordingly, numerous chemical treatments for fabrics and related products were developed which afforded protection against fungi under average conditions.

Within recent years the greatly increased military use of textile fabrics, often under circumstances subjecting them to the combined destructive attack of both fungi and bacteria, has required the utilization of more effective protective treatments. With the development of such protective treatments, the need arose for test methods for evaluating their effectiveness in preventing or retarding fabric deterioration. The soil burial method is especially useful for testing fabrics which are to be used in contact with plant debris, soil, or water.

An investigation of mildewproofing and rotproofing treatments for cotton osnaburg and jute burlap sandbag fabrics was begun by the Bureau of Agricultural Chemistry and Engineering (now Bureau of Agricultural and Industrial Chemistry), U. S. Department of Agriculture, in Washington in 1940, at the request of the Corps of Engineers, U. S. Army. Many different proofing treatments were evaluated by means of the soil burial method described by the American Society for Testing Materials (1).[2] In November 1941 the project was transferred to the Southern Regional Research Laboratory at New Orleans, where further extensive tests were carried out as nearly as possible in accordance with the method described. The essentials of the procedure involved are as follows:

In a greenhouse or suitable room make a smooth bed of soil about 5 inches in thickness, using a composted soil rich in cellulose decomposing microorganisms, and sprinkle well with water. From each fabric to be tested cut 20 specimens, each 6 inches long in the warp direction and 3 inches wide. Bury half of this number of specimens by pressing one end of each vertically downward into the soil with a thin metal blade until a $3\frac{1}{2} \pm \frac{1}{2}$ inch length is buried; then bend the unburied upper portion of the specimen over so that it lies flat on the surface soil. Keep the bed at a temperature of $90 \pm 5°$ F. and sprinkle twice daily with enough water to maintain the soil at a moisture level which is best for growing plants. (To determine when this desired soil moisture content has been attained, lightly squeeze a handful of soil in the hand. It should feel moist but when dropped to the bed from an elevation of 2 feet it should crumble). After six weeks burial remove the fabric specimens, condition according to standard methods, and determine their warp breaking strength by the grab method. Break a length of specimen which includes portions both from above and below the soil line. Compare with the average breaking strength of the 10 unburied specimens.

As a check on the rate of decomposition in the soil burial test, bury specimens of 7-ounce cotton osnaburg, some untreated and some treated to contain 10 per cent by weight of copper naphthenate (equivalent to one per cent copper). The former specimens should retain less than 10 per cent of their original breaking strength after burial for one week, and the latter should retain from 60 to 90 per cent of their breaking strength after burial for six weeks.

The first procedure followed at this laboratory differed from the above principally in that outdoor soil beds were used instead of a greenhouse or room, this modification being necessary because of inadequate indoor space. After several months, however, it became apparent that the test results obtained were difficult to duplicate and generally unsatisfactory, especially with regard to the rate and uniformity of deterioration of buried specimens. Accordingly, in an attempt to determine possible means for improving the method, careful observations were made of the tests then in progress.

The observations indicated that: (a) The soil was compact and poorly aerated, and internal drainage was poor; (b) continued sprinkling with alkaline tap water had caused the soil to develop a strongly alkaline reaction which was unfavorable for the development of desirable microorganisms; (c) neither close nor uniform contact between the soil and the buried portion of fabric specimens was being obtained; (d) the section of a specimen tested for breaking strength often did not represent the section showing maximum deterioration; (e) the wide specimens (3 in.) required an excessive amount of space for burial, in view of the fact that only a one-inch width was actually placed in the jaws of the machine used for breaking strength measurement; (f) the differences in breaking strength between replicate specimens

[1] This is one of the laboratories of the Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, U. S. Department of Agriculture.

[2] Numbers in parentheses refer to Literature Cited.

were greater than should be expected. It seemed desirable to further study or consider these and additional factors, including (g) types of population of soil microorganisms; (h) supply and balance of nutrients available for microorganisms; (i) soil texture; (j) soil porosity and aeration; (k) soil moisture; (l) soil reaction; (m) size, burial, arrangement, and sampling of fabric specimens; and (n) section of fabric specimen to be tested for breaking strength. The present investigation was therefore undertaken.

An examination of the literature dealing with the destructive action of microorganisms on fibers and fiber products disclosed that the terms "mildew" and "rot" have been used loosely and often interchangeably by various workers. In a stricter sense "mildew" (when used as a noun) refers to a superficial growth produced on organic materials by various forms of fungi, with or without causing discoloration of these materials; while by comparison "rot" refers to a decomposition or decay of organic materials by fungi, bacteria, and other microorganisms. This restricted usage of the terms will be followed in the present paper.

REVIEW OF LITERATURE

The earlier literature on the destructive effect of microorganisms on cotton fabrics was summarized by Armstead and Harland (2) in 1923 under two main headings, namely, (a) bacteria and (b) fungi. The reported investigations included under the latter heading indicated that either yellow, green, brown, or red discolorations of cotton fabrics may be caused by various species of fungi, and the term "mildewing" was used in a general way to refer to this type of fungal attack. Later, Barker (4) pointed out that damage of fabrics by fungi is readily recognized because of the discoloration produced, while damage through bacterial action is difficult to detect by visual examination. Levine and Veitch (9) had previously reported that mildewing is due to the development of various mold growths and may be caused by a rather large number of species of fungi of the mold type. They observed, in agreement with other investigations demonstrating the presence in air of "spores of cellulose destroying fungi," that sterile cotton fabrics will mildew if exposed to air contamination and to conditions favoring mold growth. One method previously used for testing the mildew resistance of fabrics was the burial of a sample of cloth in a moist soil at a depth of 12 to 15 inches, and estimating the degree of resistance of the sample on the basis of its condition after burial for one month. The value of this method was questioned by Levine and Veitch who pointed out that it probably measures resistance to bacterial action rather than to mildew, since the proportion of fungi to bacteria present in a soil at this depth usually is relatively small, and is much smaller than near the surface. A laboratory method for testing mildew resistance was proposed by these authors in which 6 disks of the previously washed fabric sample were placed on plain agar plates, incubated 7 to 10 days without inoculation and, in the absence of extensive spontaneous growth, for 3 to 4 weeks after inoculating with a mixed culture of mold fungi (*Alternaria, Cladosporium,* and a pink *Mucor*). An average numerical rating of mildew resistance on a scale of 0 to 10 was assigned on the basis of observable factors with regard to contamination growth, inoculation growth, discoloration, and tendering of cloth. Fabrics rated high (6 to 9) by this method were also found to show considerable to high mildew resistance in outdoor exposure tests. Those having the maximum rating (10) were found to be mildewproof in outdoor exposure tests.

Various other investigators have developed laboratory tests for measuring the resistance of fabrics to certain species of fungi known to be efficient in destroying cellulose. Thom *et al.* (13) selected *Chaetomium globosum* as the fungus most satisfactory for use in tests of this type, while Greathouse *et al.* (7) suggested a *Metarrhizium* sp. Additional pertinent literature has been reviewed by Prindle (11). Such laboratory tests, however, measure mildew resistance and are chiefly applicable to fabrics which are not to be used in contact with soil. Recently Furry and Zametkin (6) described a soil suspension method for testing mildew resistance which they considered sufficiently drastic for testing treated military and other outdoor fabrics.

Extensive experiments were carried out by Thaysen *et al.* (12) who noted that samples of cotton, flax, and hemp fabrics deteriorated more rapidly when buried in soil than when suspended above the soil and exposed to air, rain, and indirect sunlight. Since mildewing was usually more noticeable on the latter air-exposed samples, it was mentioned that while mildewing causes slow deterioration of fibers, even heavy mildewing may have failed to cause as rapid deterioration as an attack by cellulose-destroying bacteria. On the basis of indirect evidence, these workers considered the moisture content of a fabric to be the governing factor responsible for the more damaging nature of soil burial, since a moisture content of 10 per cent is sufficient for the initiation of mildewing, while bacteria fail to grow on fabrics containing less than 20 to 25 per cent moisture. This concept was strengthened when microscopic examinations of fabrics which previously had been exposed to air under moderately humid climatic conditions showed the presence of large numbers of fungi but relatively few cellulose-destroying bacteria.

In the soil burial tests by Thaysen *et al.* (12) samples were buried vertically, and left until deteriorated sufficiently to be easily torn by hand. The cotton fabrics had acquired a moisture content of over 30 per cent after five weeks' burial, although the moisture content of the soil at no time exceeded 15 per cent. Further results of soil burial tests indicated that: (a) Hemp, flax, jute, and cotton fabrics of similar weight will rot at approximately the same rate; (b) the parenchymatous sheath of jute fibers failed to impart protection against rotting; and (c) the lignin of jute does not delay rotting of the fibers beyond the time of rotting of fibers of pure cellulose. These investigators also expressed preference for the soil burial method of evaluating proofed fabrics over laboratory microbial methods involving inoculation of fabrics with cultures of fungi or with mixed cultures of fungi and bacteria, and pointed out that although soil burial is a severe test, military fabrics will frequently be subjected to service conditions of comparable severity.

Armstrong (3) used the term "rotting" to refer to microbiological attack in which both fungi and bacteria take part, and mentioned that many strains of cellulose decomposing organisms are common in most soils. In one experiment, samples of untreated jute fabric were buried in a soil in the open. New burials of samples were repeated at different times over a period of nearly two years. The number of days required for a fabric sample to rot was found to be inversely proportional to the mean temperature of the soil at depths of 3 to 4 inches, varying from a maximum of 82 days in winter to a minimum of 21 days in summer. A second outdoor experiment was conducted with untreated jute sandbags which were filled with earth and placed on earth. The number of days required for the underside of the bag to rot was observed to decrease with an increase in mean soil temperature, varying from 89 days in winter to 21 days in summer. The exposed upper face of a bag lasted 3 to 6 times as long as the underside, chiefly because frequent drying and temperature fluctuations retarded microbiological attack. Where bags were stacked one above another, the portion in contact with an overlying bag lasted approximately one and one-fourth to one and one-half times as long as the underside of the lowest bag in contact with the earth.

The data reported by Armstrong show that under similar climatic conditions the

rotting times of buried jute agreed closely with those of the underside of the earth-filled jute bags in contact with earth. These experimental results were considered of great value in indicating the minimum life to be expected for bags in a barricade or revetment.

METHODS AND MATERIALS

Preparation of Soil Beds

Although this study would have been facilitated by the use of a greenhouse or a room in which air temperature could have been carefully controlled, neither was available at the time. It was, therefore, necessary to carry out the burial tests in outdoor beds. These beds consisted of three large (12 ft. long, 6 ft. wide, 1½ ft. deep) box-like wooden frames, each provided with double walls to improve insulation and supported 2 feet above the ground to allow good drainage. To further facilitate soil drainage the bottom of each frame was first perforated, and then covered with a 2-inch layer of gravel followed by a 2-inch layer of coarse sand. On top of the sand was laid a thermostatically-controlled electric heating cable. Finally, a 9 to 10-inch layer of a soil mixture was placed in the beds, and the beds were covered with removable panels of transparent plastic mesh material.

The "soil" used in this study was a specially prepared mixture of coarse river sand, well-rotted barnyard manure, and clay-loam soil taken from a garden. These three materials were selected because of their respective properties and the effects of each material on the mixture, namely: Coarse sand—to improve aeration, porosity, structure, and permeability to water; manure—to furnish cellulose-destroying microorganisms, organic matter, nutrients, to prevent puddling or packing, and increase the water-holding capacity of the soil; clay loam—to supply additional microorganisms and nutrients, and also to furnish colloidal material which would function in cation-exchange reactions, buffer the mixture against fluctuations in pH, increase the water-holding capacity, and increase the cohesiveness of the mixture.

The clay loam and the manure were first partially air-dried, pulverized, and sieved through a coarse (4-mesh) screen. The coarse sand was merely sieved to remove pebbles and debris. Several trial mixtures, each consisting of different proportions of these three materials, were prepared, moistened and examined. The mixture which appeared most suitable with respect to texture and physical condition was obtained by combining and intimately mixing equal portions by volume of coarse sand, manure, and clay loam. Accordingly, this mixture, hereafter referred to as soil, was used in the burial tests.

Soil Moisture

In order to determine the moisture content at which this soil should be maintained during the burial tests, several one-kilogram samples of soil were taken. These samples were placed in beakers, and each sample sprinkled with a different quantity of water. Two days later, after the water became uniformly distributed throughout the soil, a portion of each sample was squeezed lightly and then dropped on the surface of the bed from an elevation of 2 feet (in accordance with the A. S. T. M. procedure already described). The sample which cohered sufficiently to retain its shape after being squeezed and yet crumbled upon impact was considered to be at the optimum moisture content. A moisture determination showed that this sample contained 28 per cent moisture, based on oven-dry weight of soil.

Next, the moisture content of the soil in the beds was determined, and the amount of water necessary to raise the moisture content of the entire soil mass to approximately 28 per cent was calculated. The soil was then sprinkled with the required quantity of distilled water, and left undisturbed for several days to allow the soil and added water to reach equilibrium before the burial was started. Another addition of water was made immediately after burial of the fabrics.

Number of Beds and Soil Treatments

The soil beds, three in number, were each divided into two equal-sized sections, or halves. Since the individual beds are identical, they will, for convenience in description, be considered as a single large bed. The soil in one-half of the section, designated as the control soil or "Soil C," received no further treatment other than applications of distilled water, while that in the other half, designated as the nutrient-treated soil or "Soil N," received additions of inorganic nutrients along with applications of distilled water.

Preparation and Burial of Samples

Strips of 6½ oz. cotton osnaburg and 8½ oz. jute burlap were cut 9 inches long parallel with the warp yarns, and 1½ to 2 inches wide, the greater width being used for the coarser fabric (jute burlap). The first set of fabrics consisted of two duplicate lots of strips, each lot containing 50 strips of untreated cotton osnaburg, 50 strips of untreated jute burlap, and 50 strips of each kind of rotproofed fabric to be tested for rot resistance. One lot was buried in Soil C and the duplicate lot in Soil N. The fabrics were buried as follows. By means of a 2-x-10-inch piece of sheet iron, one end of each strip was pushed down vertically into the soil—with the long dimension of the strip upright—to a depth of approximately 7 inches, and the upper 1½ to 2-inch unburied portion of the strip bent over into a horizontal position flat on the surface of the soil. The individual fabric specimens were buried at 3 inch intervals in rows spaced 3 inches apart, and were distributed in randomwise arrangement. This spacing was used to allow removal of any strip without disturbing the soil about adjacent strips, and the randomized arrangement being followed to minimize experimental errors resulting from variations in soil conditions between different portions of the bed. Immediately after burial the soil about each strip was firmly pressed down by hand in order to insure the close contact between soil and fabric which is necessary for rapid and uniform fabric rotting. (Careful attention to the latter practice is essential for uniform infection and attack of the fabric, since, as has been pointed out earlier (12), most of the cellulose-destroying microorganisms in a soil are concentrated on particles of decomposing organic matter and do not operate at great distances from these substrate particles). Then the beds were sprinkled with the desired amount of water.

An additional test was made to compare specimens buried in the usual way with others buried without pressing down the soil, and to compare specimens buried while dry with specimens moistened with either distilled water or a complete nutrient solution before burial.

Additions of Water and Nutrients

During the burial period the untreated soil, designated as Soil C, was maintained near the desired moisture content by daily additions of measured amounts of distilled water, applied uniformly with an ordinary sprinkling can. The quantity of water required each day to keep the soil at the desired moisture content (about 28 percent) was based on the results of daily determinations of soil moisture. The treated soil, designated as Soil N, was watered similarly, but also was given additions of inorganic nutrient salts at 4 to 6-day intervals throughout the burial tests. These salts included the principal elements required in the nutrition of microorganisms. The purpose of adding nutrients was to increase, if possible, the microbiological activity of the soil and thereby accelerate rotting of the buried fabrics. The nutrient applications were made as follows: The total weight of Soil N was calculated, and a stock solution containing 50 gms. KNO_3, 30 gms. $(NH_4)_2SO_4$, and 25 gms. KH_2PO_4 per liter was prepared. The amounts of nutrient elements added per application were 6 p.p.m. (parts per million) nitrate nitrogen, 6 p.p.m. ammoniacal nitrogen, 6 p.p.m. phosphorus, 6 p.p.m. sulfur, and 24 p.p.m. potassium in terms of the ratio of the weight of each element to the total

weight of soil. The required amount of stock nutrient solution was mixed with a quantity of distilled water just equal to that applied to Soil C on the same day, and the dilute nutrient solution so obtained was applied to Soil N. On days intervening between additions of nutrient salts, Soil N was moistened with distilled water.

Soil Temperature

The thermostat which controlled the electric heating coil underlying the layer of soil was adjusted so as to maintain the soil at a temperature of 85° to 90° F. Although the current was automatically cut off when the soil temperature reached the desired maximum, the frame covers were partially raised on warm sunny days to aid in preventing excessive heating of the upper soil by sunlight. At night, however, the covers were closed. During cool weather the coil was in continuous operation and the covers were closed at all times.

Soil Reaction

At the beginning of the burial tests the soil was found to have a reaction suitable for the development of microorganisms. Since the tap water available was highly alkaline, the beds were moistened only with distilled water, or with distilled water containing certain dissolved nutrient salts. The pH of the soil was measured at frequent intervals during the experiment by means of a glass electrode-type pH meter.

Removal of Buried Samples

Beginning two days after burial, groups of five strips of untreated jute and five strips of untreated cotton fabrics were removed daily from Soil C, and like numbers from Soil N. These were selected at random from different areas in the beds, and the position of the soil line marked on each strip. The soil about the selected specimens was carefully dug away; after which the strips were lifted out and washed free of adhering soil. The specimens were then prepared for breaking strength tests. The foregoing procedure was repeated on successive days until the remaining buried fabrics were completely rotted (100 percent loss in breaking strength).

As soon as the last of the buried specimens from the first lot of untreated fabrics were completely rotted, the soil was dug up and loosened with a metal blade and another set of fabrics buried. The second set was followed by a third set, and so on. Successive burials and removals of replicate sets of untreated fabrics were made throughout the experiment.

The rotproofed fabrics buried at the beginning of the experiment were removed in the same way as the untreated fabrics except that groups of rotproofed specimens were removed from the soil beds at less frequent intervals.

Measurement of Breaking Strength

The A. S. T. M. method specifies that the breaking strength of fabrics be measured, after burial, by the grab method on a 3-inch section which includes portions of the fabric specimen from both above and below the soil line. This section is presumably the one in which maximum rotting was found to occur. In the present study, however, experimental conditions were such that rotting was much more severe in the buried portion of untreated fabric specimens than in the portion above the soil line. The latter fact was determined before the beginning of the principal experiment by the following preliminary test. Specimens (strips 9 inches long in warp direction and 1½ to 2 inches wide) of untreated cotton osnaburg and jute burlap fabrics were buried in the outdoor bed in the manner herein described. Then, beginning on the second day after burial, groups of ten strips of cotton fabric and ten strips of jute from Soil C, and a like number from Soil N, were removed daily. Each strip was marked at the soil line so as to delimit the buried and unburied portions. This mark corresponded to zero depth of burial. On five of the strips from each group the breaking strength of the 3-inch "upper" section between ½ inch above and 2½ inches below the soil line mark was determined, while for the other five strips of the group the 3-inch "lower" section between 2½ and 5½ inches below this mark was similarly tested. The extremities of the strips not included within these sections were not tested, since the upper unburied portion rotted very slowly and the lower folded portion had been subjected to excessive pressure and abrasion at the time the strips were pushed down into the soil. After all of the strips had been broken, the distance from the soil line mark to the point at which each strip broke was measured. Then the average day by day breaking strength loss of the two sections was compared, and the number of breaks falling within each one-inch zone in these sections tabulated.

As a result of this preliminary test it was decided to make all subsequent breaking strength measurements, for both untreated and treated fabrics, on the 3-inch warp section of specimen which during burial extended vertically between the 1- and 4-inch soil depths.

After breaking strength measurements had been made, the average strength of each group of five specimens was calculated and expressed in terms of the percentage loss in breaking strength over that of unburied specimens of the same fabric. By plotting the daily average percentage loss in breaking strength against number of days burial, curves were obtained which represented the rate of rotting of each fabric and also served as a measure of the rotting power of the soil during the burial period of a given lot of fabrics. The data obtained for the various replicate sets of untreated fabrics yielded a series of curves covering consecutive periods during the experiment. The curves so obtained were compared with curves representing the rate of rotting of the rotproofed fabrics.

Soil Analysis

Representative composite samples, one of Soil C and one of Soil N were taken daily for analysis. Each sample weighed approximately one kilogram, and was obtained by combining and mixing ten vertical slices of soil removed at random from as many different points in the soil bed. Analyses made when the tests were initiated showed that the carbon-nitrogen ratio of the soil was within a range which would favor rapid microbiological attack of buried fabrics. Moisture determinations were made daily on suitable portions of these composite samples. The samples were further analyzed at various times during the experiment in order to obtain information on chemical changes occurring in the soil which might cause fluctuations in the rate of rotting of buried fabrics, and also to determine the optimum magnitude and frequency of nutrient applications to be given Soil N.

Nitrate and ammoniacal nitrogen were determined on alternate days, but analyses for other constituents were made less frequently at arbitrarily chosen intervals. Nitrate nitrogen was determined on a water extract of the soil by the phenoldisulphonic-acid method (8), and ammoniacal nitrogen determined on a 0.001 N HCl extract by nesslerization. Moisture determinations were made by drying duplicate 4-gram soil samples to constant weight at 105° C. Available phosphorus was determined colorimetrically on a 0.002 N H_2SO_4 extract according to the procedure of Truog (14), and available potassium was determined gravimetrically on a normal ammonium acetate extract by the chloroplatinate method. Total carbon and total nitrogen were determined by the chromic acid combustion and Kjeldahl methods, respectively. Measurements of pH were made on 1:5 soil-water suspensions with the glass electrode. A mechanical analysis of the soil was made by the pipette method (10). Total organic matter content was estimated by loss on ignition.

Microbiological Studies

Although the previously enumerated chemical and physical factors influence the results of soil burial tests, microbial agents are responsible for fabric rotting. For this reason direct information was desired regarding the nature and population of microorganisms present in the soil in

which the fabrics were buried. As the experiment progressed, the necessary studies were carried out in accordance with the procedures described by Fred and Waksman (5). Plate counts of the numbers of bacteria, fungi, and actinomycetes were made, using as culture media a soil-extract agar for bacteria and nitrate-sucrose agars for fungi and actinomycetes. An estimate of the numbers of cellulose-decomposing microorganisms was made by partially immersing strips of filter paper in ammonium sulphate solutions containing different proportions of soil extract inoculum and then noting the highest dilution at which growth of microorganisms occurred. Also, a further estimate of the cellulose-decomposing ability of the soil was obtained by mixing one gram of shredded filter paper with 100 grams of soil and comparing the amount of carbon dioxide evolved with that evolved by a similar sample of soil to which no filter paper had been added. All of these microbial studies were carried out in an incubation room maintained at a temperature of 30° C.

Preliminary Burial Tests in an Indoor Bed

The results of the burial tests in the outdoor beds gave rise to several questions regarding: (a) the relative rate of fabric rotting at different soil temperature levels; (b) differences in fabric rotting at different soil depths; and (c) whether the pronounced rotting often noted near the lower edge of vertically buried fabric specimens resulted from accelerated microbial infection by way of the frayed ends of the yarn, from mechanical damage to warp yarns by pressure of the metal blade used to push specimens down into the soil, or from improved contact between soil and lower portions of specimen caused by pressure at time of burial. In order to answer these questions some preliminary small-scale burial tests were carried out in an indoor soil bed in a room where air temperature and humidity could be controlled. The bed was prepared in the same way as the outdoor bed, except that no covers were used. Then, before starting the tests, the soil was brought to a uniform moisture content and as nearly as practical to temperature equilibrium with the air in the room.

For the first series of tests the soil was kept at a temperature of 86 ± 2° F. and a moisture content of 29 ± 3 percent; the air in the room was maintained at 92 ± 2° F. and 50 ± 5 percent relative humidity. The soil temperature was very uniform at different depths, being only 1° F. lower at the 1-inch depth than at the 7-inch depth. Specimens of untreated cotton osnaburg 3 inches wide and varying in warp length were buried in different ways as follows: (a) Vertical burial to depths of 3, 5, and 7 inches, some specimens pushed down with metal blade, others placed in trenches and covered; (b) horizontal burial at depths of 1, 3, 5, and 7 inches; and (c) U-type burial in trenches, with lower bend of fabric at 7-inch depth and ends extending above the soil. The second series of tests was carried out at the same soil moisture content but at a lower temperature, the soil being maintained in this case at a temperature of 75 ± 4° F., and the air at 78 ± 4° F. and 55 ± 5 percent relative humidity. The specimens were buried vertically just as before, but horizontal burials were made only at depths of one-fourth inch and 1 inch.

During the burial tests specimens representing each type of burial were removed at either 24- or 48-hour intervals. Comparisons of the specimens were made on the basis of breaking strength measurements and time required for rotting.

(To be concluded in next issue)

THE ROMANCE of DYESTUFF NAMES

WM. S. HUBER

Textile School of the Rhode Island School of Design

TO the neophyte dyer, if not to the adept, one of the confusing features of the subject is the nomenclature of the dyestuffs. His formal study of chemistry included methods of naming compounds which gave indication of the nature of the compound and thereby helped him recall, should his memory falter. However, when dyes became his daily bill-of-fare, although he may have sought for some such type of system, almost any source to which he turned swiftly made evident the fact that the naming of dyes apparently began without any attempt at correlation, and so continued. J. M. Matthews substantiates this when he says in part, "In the early days of dyestuff manufacture, the name . . . usually had some reference to a particular quality of tone, such as Malachite Green . . . or was given as a courtesy to some prominent historical character, such as Bismarck Brown." Since the advent of coal-tar dyes and the expansion of colors into sizeable groups, this lack of system has been lessened, and while the student may bog down in distinguishing shade indication of the order of Croceine Scarlet MOO, MOON, and MOOP, he readily acquires a working knowledge of the several manufacturers' methods of naming entire groups.

However, it is not the purpose of this article to systematize or even to suggest any other method of nomenclature, but rather to explore the sources from which some of the dyestuffs got their present names. For example, why is Malachite Green so called? To say that it resembles the green of a certain mineral is but part of the correct reason. Or, what is the meaning of the word "madder"? Again, is Magenta, like Bismarck Brown or Victoria Green, a name of historical significance?

It is common knowledge that the primitive dyes were, for the greater part, vegetable by nature, and that because chemistry had yet to become a science, the roster of such dyes was short. Of these, the most enduring through the centuries was the blue referred to in the Old Testament.

> "And thou shalt make a veil of blue, and purple, and scarlet, and fine twined linen."
>
> Exodus, XXVI, 31.

The exact identity of this blue is somewhat subject to question but probably it was indigo.

Parenthetically, it might be said that this uncertainty is not limited to the identity of dyes but extends to many other substances mentioned in the early books of the Bible. At that time, civilization and its attendant arts were in the making; materials were limited for want of scientific knowledge; and the records of the times, not made until much later, were subject both to limitations of vocabulary and to the personal interpretations of scribes not always fully in rapport with all aspects of the subject matter.

In the metallurgical field, both steel and brass are mentioned in some versions of the Old Testament but it is questionable that either were known as early as such translations imply. Nahum's chariots of steel were more probably the iron of King Og's massive bedstead, and brass was more

apt to resemble our specification of a bronze.

It is possible that indigo might have been obtained by the Hebrews from the Egyptians, who, in turn, imported it by Phoenician mariners from India. As a consequence, the Greeks, in speaking of the color, are responsible for our present name of this dye inasmuch as their word for India is "indikos." On the other hand, instead of using indigo, which may have been somewhat costly by reason of its being imported, they might have employed the cheaper source of blue, Isatis tinctoria, commonly known as woad in later days. As we shall see, this was a plant known in many European countries for the same use.

In addition to blue, reference might be extended to two kinds of purple—a red purple, and one more nearly blue. The latter color was called "tekelet" by the Hebrews. The former, called "argaman," or in Aramaic, "argewan," was derived from the Mediterranean shellfish, *Murex brandaris,* and is the Tyrian purple mentioned in nearly all references dealing with the early dyes.

Ezekiel also speaks of the use of red, the word appearing in three forms: tola or tolaat, (meaning insect), shani (bright red), and karmil, (crimson). The dyestuff was obtained from the insect, kermes, which, for its particular use, was indigenous to Syria. Although the source of the dye is a real insect, classified in entomology as "Kermes ilicis," kermes is an Oriental word meaning "worm." Apparently, its use was relatively widespread because one finds that in Sanskrit, the word appears as "krmi," in Iranian as "kerema," in Arabic as "Dud il Quirmis," and in Lithuanian as "kirmis." The Greeks, however, had another name for it—"kokkos," meaning a berry because the entomological specimen of all these variations is small enough to be mistaken for one.

While speaking of red as a color, its variation, scarlet, is interesting. This comes to us from the Persian "sakirlat," meaning red color, although it passed through the medieval Latin "scarlatum" in order that it might attain its present form.

Of the dyes common to the trade prior to the synthetic products, madder, saffron, safflower, logwood, cochineal, and fustic are well known. Some of these have rather brief etymological histories, having been named apparently as a matter of expediency and, perhaps, unwillingness to struggle with a more accurate name. Logwood, with its ponderous botanical name, *Haematoxylin campechianum,* undoubtedly fell into this latter category and was called just plain "logwood" because it was imported in the form of logs.

Although by no means universal, some materials display pronounced similarity of names in different languages. The Sanskrit root, "madhura," meaning sweet or tender, becomes "madhra" in Icelandic, "meede" in Danish, "maedere" in Anglo-Saxon, and "madder" in English. Saffron and safflower, although deceptively alike, enjoy different origins. The first begins with the Arabic "safaran" but passes through "safranum" in medieval Latin and "safran" in early French before becoming its present form. Safflower, on the other hand, seems limited to two forms in Italian: zaffrole, or saffiore.

Woad, to which reference has been made, had early Anglo-Saxon forms of "wad" and "waad." Standing alone, neither wad nor waad, nor any other linguistic forms which can be traced, bear as close resemblance to our present word, wood, as does the early English "woad." The root, that original source from which they were derived, is not known, but they all seem to mean "a tree" or "wood" in general, that is, when not used by a dyer of textiles. To him, woad was a specific term.

Cochineal seems to have arrived somewhat indirectly. "Coccinus," meaning scarlet-colored, became the liquid and musical "cochinilla" in Spanish, which is to say, wood-louse. Fustic, the yellow dye, began its word history in Arabic as "fistaq" and "fustuq," greenish yellow, although there is another variation in the Greek of our present word "pistachio" which was contemporary. However, the Arabs seem to have carried the word to Spain, probably during and after the period of the Moorish conquest of that country, because it appears later in the French tongue as "fustoc."

Cutch, differing from all the foregoing, has travelled far, coming from distant Malay as "kachu" and "catechu," and from India as "kattha." Although the word refers to a dyestuff, kachu embraces astringents derived from the wood and bark of some varieties of the Acacia family. Archil, another of the older dyes, originated both in name and fact from a rock. "Rocca," medieval Latin for rock, became the Italian "orcella" and the French "orcheil." The dyestuff itself comes from the rock lichen called by the same name as the dye: archil, or in botanical terms, *Rocella tinctoria.*

The plant, mallow, has had a two-fold influence on the naming of dyestuffs. When Perkin began the era of coal-tar dyes, the first color was his Mauve, he having synthesized it quite accidentally while aiming at another product. Mauve is the French noun for "mallow" but it was chosen specifically to describe the resemblance of the synthesized color to the purple tones of the mallow flower petals. In addition to this, Malachite Green, although directly allied in color to the mineral, malachite, (basic copper carbonate), actually has as its root the German word, "malache," descriptive of the green of the mallow stems.

When one attempts a similar treatment of the synthetic dyestuffs, the task is so enlarged because of the greater number of these, that only a few of the total possibilities can be chosen, and those more or less at random. Just a cursory glance through the list of colors yields so many opportunities of inquiry that to pursue all of them would be almost a Herculean task. Therefore, in selecting the remaining dyes, those having in general the greatest degree of etymological obscurity and appeal will be used, although it is recognized that the choice in all probability may not meet with the complete acquiescence of every reader.

The first of a group of three apparently springs from the Arabic. Here, "al" (the) and "acara" (juice pressed out) ultimately became "al izari" or "alizari," the commercial name for madder in the East. The early source of alizarine, so very important in the dye industry, was the juice of this plant, pressed out and refined. The second, the anthracene dyes, owe their group name to "anthrax," the Greek word for coal, while the orange basic Chrysoidine derives its attractive form from "chrysos," gold. In a spirit of accuracy, it should be said that anthrax really means "a burning coal" rather than just coal but he who first selected the Greek form took a perfectly justifiable liberty.

Thus far, the dyes have not been allied to historical events, but because one color was discovered in 1859, the date of the battle of Magenta, Italy, this well known shade was so named as a memorial of that attempt to cast off the shackles of foreign domination.

If one were inclined toward horticulture, the pink, red, or purple fuchsias would give a clue as to why Fuchsine was so called, but that is not all, for the fuchsias in turn derived their name from a German botanist, Leonard Fuchs. Another dyestuff allied with flowers is Primuline. This comes from the Latin form, "primula," primrose, so called because of its early appearance. Usually one associates the word with the delicate pink, fragile flower which graces our New England road-sides, but primuline as a chemical substance was obtained originally from the roots of another variety of primroses, the cowslip.

Although nitrogen in combination is vitally necessary to the fuchsias, the primroses, and to all other flora, it was early recognized that as an element it was a non-supporter of life. This conception of the gas was developed in contra-distinc-

(Concluded on Page 440)

PROCEEDINGS OF THE

American Association of Textile Chemists and Colorists

OCTOBER 9, 1944

Officers of the Association

WILLIAM D. APPEL, *President*
National Bureau of Standards, Washington, D. C.

HUGH CHRISTISON—CHARLES A. SEIBERT, *Vice-Presidents*

WILLIAM R. MOORHOUSE, *Treasurer*
National Aniline Division, Allied Chemical & Dye Corp., Boston, Mass.

HAROLD C. CHAPIN, *Secretary*
Lowell Textile Institute, Lowell, Mass.

LOUIS A. OLNEY
President Emeritus and Chairman of the Research Committee
Lowell Textile Institute, Lowell, Mass.

COUNCILORS

Representing Sections

ALLISON R. FLETCHER; BEN VERITY (Rhode Island)
JAMES P. CONAWAY; ARTHUR E. JONES; JOHN F. McCOY (Philadelphia)
KENNETH H. BARNARD; J. ROBERT BONNAR; J. ERNEST MEILI; GEORGE A MORAN (New York)
JOHN N. DALTON; HARRY M. HARTNETT; CHARLES H. A. SCHMITT (N. New England)
C. NORRIS RABOLD; R. E. RUPP (Piedmont)
ROBERT W. PHILIP (South Eastern)
JACK ANDERSON (South Central)
HERBERT W. TETZLAFF; ARTHUR T. BRAINERD (Midwest)

Past Presidents

ELVIN H. KILLHEFFER; P. J. WOOD; ROBERT E. ROSE; WILLIAM H CADY; ALBAN EAVENSON; CARL Z. DRAVES; THOMAS R. SMITH

Standing Committees of the Council and their Chairmen

Executive Committee on Research
Leonard S. Little, Chairman

Publicity
Henry F. Herrmann, Chairman

Appropriations
William R. Moorhouse, Chairman

Membership and Local Sections
Hugh Christison, Chairman

Publications
Louis A. Olney, Chairman

Corporate Memberships
Henry F. Herrmann, Chairman

Local Sections and Their Officers

Northern New England Section

Delbert E. Ray, Chairman Massachusetts Mohair Plush Co., Western Ave., Lowell, Mass.
Azel W. Mack, Secretary, Hart Products Corp., 176 Federal St., Boston, Mass
G. Clifford Emmons, Vice-Chairman; George O. Linberg, Treasurer

Rhode Island Section

Harold B. Sturtevant, Chairman, 44 Brookside Dr., Cranston, R. I.
Robert W. Joerger, Secretary, Institute Lane, North Scituate, R. I.
George H. Wood, Jr., Vice-Chairman; Robert R. Farwell, Treasurer

New York Section

Emmett J. Driscoll, Chairman, Sayles Finishing Plants, Inc., 72 Leonard St., New York, N. Y.
Norman A. Johnson, Secretary, American Dyestuff Reporter, 440 4th Ave., New York, N. Y.
Dr. Herman E. Hager, Vice-Chairman; Paul J. Luck, Treasurer

Philadelphia Section

Boyce C. Bond, Chairman, 10 Meredith Road, Overbrook, Philadelphia, Pa.
A. E. Raimo, Secretary, John Campbell & Co., S. E. Corner Broad and Spring Garden Sts., Philadelphia 23, Pa.
Arthur W. Etchells, Vice-Chairman; Curt R. Baeringer, Treasurer

Piedmont Section

Henry B. Dixon, Chairman, May, McEwen, Kaiser Co., Burlington, N. C.
Leland G. Atkins, Secretary, Southern Dyestuff Corp., Charlotte, N. C.
Sidney M. Cone, Vice-Chairman; Wyss L. Barker, Treasurer

South Central Section

Homer Whelchel, Chairman, Central Franklin Process Co., Chattanooga, Tenn
R. W. Freeze, Secretary, American Aniline Products, Inc., 2202 Chamberlain Ave., Chattanooga, Tenn.
J. A. Crumley, Vice-Chairman; W. K. Newman, Treasurer

Midwest Section

Virgil T. Hartquist, Chairman, Wayne Knitting Mills, Fort Wayne, Ind
Louis Hoehn, Jr., Secretary, Nyanza Color & Chemical Co., 549 West Randolph St., Chicago, Ill.
George E. Osha, Vice-Chairman; Alfred J. Olson, Treasurer

South-Eastern Section

O. G. Edwards, Chairman, Avondale Mills, Sylacauga, Ala.
W. B. Griffin, Secretary, Kali Manufacturing Co., 939 Highland Terrace, N. E., Atlanta, Ga.
J. B. Smenner, Vice-Chairman; Laurie E. Whittelsey, Treasurer

STUDENT CHAPTERS

Lowell Textile Institute
North Carolina State College
Philadelphia Textile Institute
New Bedford Textile School

Members should notify the **Secretary** immediately of all address changes.

MEETING OF SOUTH-EASTERN SECTION

THE South-Eastern Section met at La-Grange, Ga., on Saturday, Sept. 9. We were honored to have as our special guests at this meeting the entire personnel of the National Executive Committee on Research composed of Leonard S. Little, chairman; Wm. D. Appel; J. Robert Bonnar, Dr. Louis A. Olney, Thomas R. Smith, and P. J. Wood.

At the invitation of Robert W. Philip, president and executive director of Callaway Institute, Inc., members and guests assembled at 4:30 P.M. for a conducted tour of the Institute and its activities. Dinner was served at 6 P.M. at the Callaway Auditorium.

Earle Mauldin of *Textile World* led the members in group singing and chairman O. G. Edwards, who presided, called upon P. K. McKenney, president of Swift Mfg. Co., Columbus, Ga., to return thanks. A. K. Haynes, chairman of the corporate membership committee, reported twelve new corporate members or a total of 16 for our section. W. B. Griffin, secretary, reported a gain of 32 members for a total membership of 173, and also reported in the absence of L. E. Whittelsy, treasurer, that our section is now free of debt. E. A. Feimster, superintendent of finishing, Eagle & Phenix Mills, Columbus, Ga., suggested that our section investigate past members who are now in the armed forces and sponsor their reinstatement to membership. Chairman Edwards announced that our next meeting would be held in Atlanta, Ga., at the Atlanta Athletic Club on Saturday, Nov. 25, 1944. A show of hands indicated that 12 members from our section will attend the National Convention at Atlantic City, N. J., on Oct. 12-14.

Chairman Edwards turned the meeting over to Robert W. Philip who introduced James F. Armstrong of Spalding Knitting Mills, Griffin, Ga., one of our members, who delighted the audience with his novel whistling of several popular numbers. Miss Mary Crowder, dance director of Callaway Educational Association presented her pupils in various singing and dancing numbers which was thoroughly enjoyed. Mr. Philip next introduced Leonard S. Little, chairman of the Executive Committee on Research, who outlined the phases of research instituted by the committee and then in turn introduced the other members. Each gave a short outline of his particular phase of the research program.

Mr. Little stated that the working committee had held seven meetings and had several important projects under way. The general committee comprised 60 men and definite results could be foreseen.

Photo, Courtesy Atlanta Constitution

MEMBERS OF THE EXECUTIVE COMMITTEE ON RESEARCH MEETING AT THE ATLANTA BILTMORE HOTEL ON SEPTEMBER 8th. Seated, left to right, Dr. Louis A. Olney; Leonard S. Little, Chairman; Standing, left to right, J. Robert Bonnar, Secretary; P. J. Wood, W. D. Appel and T. R. Smith.

Dr. Olney reviewed briefly the history of the association which has grown from 40 charter members in 1921 to a total membership of 3,300 at the present time. Both he and Mr. Little emphasized the need of more corporate memberships. During the period of 1921-30 the research work was carried on principally by individual members in their own laboratories. From '30 to '40 supplemental funds were procured to assist in the project, but since 1940 the society has been on its own resources and there is a definite need of additional corporate members to assist in financing the work now being carried on. New procedures are being developed and tests are being conducted on several interesting phases of waterproofing, etc.

T. R. Smith outlined the actions of the Executive Committee in reorganizing the 37 sub-committees into 16 active working groups and briefly reviewed the principal subjects assigned, among which were: wash fastness tests for dyes and printed textiles, fastness to light, bibliography, standard methods of chemical analysis and testing as applied to the textile industry, water resistance of fabrics, color, standard methods of determining finishing materials in textiles, chemical technology of wool, crease resistance and permanency of finish on fabrics, resistance to insect pests, transference of color, shrinkage of textile fabrics, mildew proofing, testing fire resistant material and detergency.

Speaking on wash-fastness tests J. R. Bonnar said, "It has been a recognized fact that for some time our working standards have been very suitable for evaluation of one dye against another or one run against another, in other words for a yardstick of comparison but that the AATCC did lack a performance test." This is now their objective. The large committee headed by Chas. Dorn has been broken down into smaller sub-committees and will include groups on cotton (including rayon), wool, and hosiery. Henry B. Dixon, chairman of the Piedmont Section, will head up the sub-committee on hosiery.

P. J. Wood spoke of the close relationship of the work of the committee to the actual problems of the mill and the vanishing idea that AATCC was a "foreign" or far-removed organization. He mentioned several projects of current interest in his brief remarks.

President Appel rounded out the discussions with an intimate brief on the possibility of conflict between the activities of the research committee and those of the numerous textile research institutions which have recently been organized. They are *not* competitors; AATCC is *not* a research, but definitely *is* a professional organization. To quote from his remarks: "To the extent that the other organizations undertake research in our field, it is clearly our object to encourage them and to give them the benefit of our knowledge and long experience. The opportunities for research on textiles are almost limitless, and the more that is accom-

MEMBERS OF THE SOUTHEASTERN SECTION AND THEIR GUESTS AT THE CALLAWAY INSTITUTE ON SEPTEMBER 9th. Front Row—left to right—Thomas R. Smith, Wiscassett Mills Company, Albemarle, N. C.; Mrs. Roy B. Davison, Callaway Institute, Inc.; Leonard S. Little, E. I. du Pont de Nemours & Co., Inc., New York City; Miss Alice Sutherland, Callaway Institute, Inc.; Louis A. Olney, Professor Emeritus, Lowell Textile Institute, Lowell, Mass.; Mrs. Ruth Parrott, Callaway Institute, Inc.; J. Robert Bonnar, General Dyestuff Corp., New York City; Miss Marian Fling, Callaway Institute, Inc.; Miss Katherine F. Glass, Callaway Institute, Inc.; William D. Appel, National Bureau of Standards, Washington, D. C.; Mrs. Alice P. Saltzman, Callaway Institute, Inc.; P. J. Wood, Royce Chemical Co., Carlton Hill, N. J.; Miss Doris Richardson, Callaway Institute, Inc.; J. Edwin Smenner, Callaway Mills, LaGrange, Ga.; O. G. Edwards and M. T. Barnhill, Avondale Mills, Sylacauga, Ala.

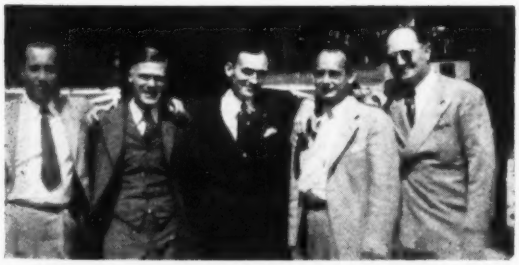
plished by research, the more knowledge that is gained, the better fortified our chemists and colorists will be to serve their employers and the industry. Our aim, then, is to promote such activities, not to oppose them. We hope they will bear fruit. If they do, our object is to bring such results to the attention of our members."

One of the dangers which might arise from the mushroom growth of research organizations in the textile industry is that too much might be expected of them and that they might fail to reach the goals set up by over-optimistic contributors. Another danger lies in the duplication of effort, he said.

He concluded, "AATCC has always avoided duplication by maintaining close contact with other organizations whose interests are related to ours. It is represented on the Board of Directors of the Textile Research Institute. It is a member of the Intersociety Color Council and has cooperated with that organization on problems of common interest. It has joint committees with the textiles group of the A.S.T.M. Our Research Committee includes members from the Laundry Owners National Association, from several Government agencies interested in textiles, including the military services. Robert W. Philip, director of the Callaway Institute, is a valued member.

"We have recently joined with other textile research groups in the formation of an Intersociety Council for Textile Research, which proposes to maintain a continuous inventory of active research projects sponsored by textile groups working in the interests of the textile industry, as a means of avoiding unintentional duplication of effort.

"Thus we are, and always have been, well prepared not only to avoid duplica-



Photos by Earl Mauldin

AMONG THOSE PRESENT AT SOUTHEASTERN SECTION MEETING. Above, left to right—George Dozier, Sandoz Chemical Works, Inc., Marietta, Ga.; James F. Armstrong, Spalding Knitting Mills, Griffin, Ga.; S. M. Hamilton, Holeproof Hosiery Co., Marietta, Ga.; J. W. Swiney, Fulton Bag and Cotton Mills, Atlanta, Ga.; W. B. Griffin, Kali Manufacturing Co., Atlanta, Ga. At Right, left to right—Fred Crayton, E. I. du Pont de Nemours & Co., Inc., Columbus, Ga.; Miss Cecil Mae Patton, Shannon Hosiery Mills, Columbus, Ga.; M. T. Barnhill, Avondale Mills, Sylacauga, Ala.

tion, but to draw upon all available sources for help in the research work we have undertaken."

Our attendance prizes were won by Alvin H. Leonard of Callaway Mills, and Royce C. Smith, of Swift Mfg. Co. Attendance at this meeting, 133 members and guests. Meeting adjourned at 9 P.M.

Respectfully submitted,

W. B. GRIFFIN,
Secretary

—♦ ♦—

THE INTERSECTIONAL CONTEST

THERE is something about a contest that appeals to every American. It may be a three cornered fight for the baseball championship or presidential candidates trading blows by radio, but we all are interested and take sides instinctively. So this year's Intersectional Contest, Friday evening, October 13, at 8:30 P.M. at Atlantic City's Hotel Claridge is sure to draw a crowd as every member of the AATCC is interested in his section's success and many members have a special stake in it because they have worked long extra hours on their sectional contest committee.

Quite apart from the competitive angle and the division of the one hundred dollars in prize money, the Intersectional Contest offers an opportunity to learn the results of seven different research projects which will be released at this meeting. Each section chose its own subject, of course, and surprisingly enough, there is a great diversity in their choice. The subjects range from what makes cotton knitting yarns knittable, to dimensional changes in rayon fabrics and shrinkage of nylon; from sulfur dyeing problems to those of vat color printing with topics in between on hosiery and on starch fluidities. The nine elected judges under "Chief Justice," Professor Olney, are already wrinkling their respective brows while trying to pick the winners. At least one of them has already started calling for outside expert assistance. The judges' final decision will be announced Saturday evening at the annual banquet.

In order to keep the contest within the time available in one evening, the speakers have been limited to ten minutes for presenting their papers. Naturally, this means a much condensed and abridged edition, but the complete papers will be published in full in the *American Dyestuff Reporter,* issue of Dec. 4th. The titles of the seven papers to be given this year are listed below together with the names of the men who have been most active in preparing them. To these men and those helping them on their committees. I want to extend a sincere word of thanks for all their help and work.

KENNETH H. BARNARD,
Chairman, Intersectional Contest

* * *

Northern New England Section Presents:
"The Effect of Shrinkage on the Physical Properties of Nylon."
Speaker—Walter J. Hamburger.
Judge—Albert E. Sampson.
Chairman Contest Committee—Frank J. O'Neil.

Rhode Island Section Presents:
"Factors Affecting Color Yield in Vat Color Printing."
Speaker—Raymond W. Jacoby.
Judge—Arthur E. Hirst.
Chairman Contest Committee—Raymond W. Jacoby.

New York Section Presents:
"A Study of the Dimensional Changes of Rayon Fabrics."
Speaker—O. F. Marks.
Judge—Patrick J. Kennedy.
Chairman Contest Committee—O. F. Marks.

Philadelphia Section Presents:
"Effect on the Appearance of Hosiery Made from Viscose, Bemberg and Acetate Yarns Subjected to Variations in Tension and Steaming During Throwing."
Speaker—Dr. Edwin C. Dreby.
Judge—William Ebersold.
Chairman Contest Committee—Dr. Edwin C. Dreby.

Piedmont Section Presents:
"Starch Fluidities."
Speaker—V. B. Holland.
Judge—N. R. Vieira.
Chairman Contest Committee—R. Hobart Souther.

South Eastern Section Presents:
"Some Tentering and Non-Tendering Influences Commonly Present in Sulfur Dyeing."
Speaker—M. T. Barnhill.
Judge—Robert W. Philip.
Chairman Contest Committee—M. T. Barnhill.

South-Central Section Presents:
"Cotton Knitting Yarn—Factors Influencing Its Knittability."
Speaker—Melvin J. Cooper.
Judge—Frank T. Myers.
Chairman Contest Committee—Melvin J. Cooper.

Mid-West Section—Unable to present a paper this year.
Judge—A. T. Brainerd.
Chairman Contest Committee—Leroy C. Voss.
"Chief Justice"—Dr. Louis A. Olney.

COMING MEETINGS, NORTHERN NEW ENGLAND SECTION

AT a meeting of the Sectional Committee of the Northern New England Section it was decided to hold meetings on the following dates for the 1944-45 season: October 20, November 17, January 26, March 16, and May 25.

At the first meeting, on October 20, at the Hotel Manger, Boston, Massachusetts, Lt. Col. John H. Talbott, Climatic Research Laboratories of the Q.M.C., will speak on "Cotton and Woolen Clothing and Equipment for the Army." It is possible soldier models wearing equipment described may be present to exhibit its construction and use.

Speakers and their papers for the following meetings have been tentatively arranged but will be announced later. Members of the Northern New England Section will shortly be sent a schedule of these meeting dates.

At the Intersectional Contest to be held at the Annual Meeting in Atlantic City in October, Walter J. Hamburger will present the paper for the Section.

SATURDAY AFTERNOON SESSION, ANNUAL MEETING

IN addition to the three papers, of which abstracts were published in the last issue, the following will also be presented at 3:30 Saturday afternoon, October 14th, at the annual meeting in Atlantic City:

(Abstract)

"The Treatment of Cotton Roving and Yarns with Bonding Agents"

by H. M. Chase
Riverside and Dan River Cotton Mills, Danville, Va.

The tensile strength of standard cotton yarns or cords is primarily a measure of the resistance to slippage of the fibers. This resistance is modified by the length of the staple, parallelization of the fibers and the twist of the yarn. This resistance is greatly increased by bonding the fibers in situ or by the formation of a friction coating on their surface. With proper choice of bonding materials combined with tensioning and compacting of the fibers, the strength of the resulting product is greater than that of the corresponding size of conventional single or ply yarn.

MEMBERSHIP APPLICATIONS

SENIOR

Edward Abrams—Technologist, National Bureau of Standards, Washington, D. C. Sponsors: Wm. D. Appel, H. D. Barker.

J. Robert Armstrong—Asst. Dyer, Larkwood Hosiery Mills, Inc., Charlotte.

N. C. Sponsors: L. M. Boyd, J. H. Dulin.

John J. Bloetjes—Salesman & Technician, Standard Chemical Products, Inc., Hoboken, N. J. Sponsors: T. F. O'Brien, N. Mellin.

Clarence G. Carey—Colorist, National Aniline Div., Allied Chemical & Dye Corp., Buffalo, N. Y. Sponsors: T. F. Murphy, C. E. O'Connell.

Fred Caron—Foreman Dyer & Bleacher, Dana Warp Mills, Westbrook, Maine. Sponsors: G. Stewart, E. M. Glennon.

Joseph S. Dahle—Research Director, The Lawrence Print Works of The Aspinook Corp., Lawrence, Mass. Sponsors: A. C. Merrill, Jr., G. O. Linberg.

Joe W. Gaffney—Colorist, Werthan Bag Corp., Nashville, Tenn. Sponsors: S. Springer, C. M. Forster.

Alfred Gellene—Finisher, Plymouth Dye Works, Inc., Paterson, N. J. Sponsors: H. J. Stulz, F. Gay.

Abraham Hasner — Colorist and Textile Technologist, General Dyestuff Corp., New York, N. Y. Sponsors: H. E. Hager, C. Z. Draves.

Friedrich A. Hempel—Textile Chemist & Colorist, Highland Handcrafts, Newburgh, N. Y. Sponsors: T. M. Chadwick, W. F. Uhlig.

Edward T. Howell—Research Chemist, E. I. du Pont de Nemours & Co., Inc., Deepwater, N. J. Sponsors: J. Killheffer, C. A. Seibert.

George W. Ingle—Supervisor, Color Laboratory, Monsanto Chemical Company, Plastics Division, Springfield, Mass. Sponsors: C. H. A. Schmitt, H. A. Ross.

Alfred J. Johnson—Research Chemist, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. Sponsors: J. W. Killheffer, C. A. Seibert.

Julius Kluthe—Manager, Manhattan Print Works Div. of Waldrich Co., Passaic, N. J. Sponsors: S. M. Conn, P. J. Kennedy.

William A. Koos—Chemist, Sandoz Chemical Works, Inc., New York, N. Y. Sponsors: J. E. Meili, H. V. Morrell.

Earle L. Manchester — Asst. Overseer, American Thread Co., Fall River, Mass. Sponsors: F. E. Starkie, C. W. Broadhurst.

Alfred H. Marks—Dyer Foreman, Berks Dyeing & Finishing Co., Mohnton, Pa. Sponsors: G. N. Bond, Jr., R. Robertson.

Lewis Morris—Supt., Globe Dye Works, Paterson, N. J. Sponsors: P. J. Rappoport, L. H. Schiffer.

William L. Moudy—Foreman, Dye Dept., Springfield Woolen Mills Co., Springfield, Tenn. Sponsors: C. C. Cayce, H. Whelchel.

Harold R. Murdock — Vice President, Hamilton Laboratories, Inc., Asheville, N. C. Sponsors: W. L. Barker, K. Mackenzie.

Jacob Nieman—Foreman Printer, Manhattan Print Works, Passaic, N. J. Sponsors: A. F. Haas, J. S. Lange.

Curt Otto—President and Dyer, Coronet Piece Dye Works, Inc., Elmhurst, Long Island, N. Y. Sponsors: F. Schlayer, H. F. Herrmann.

John A. Placella—Color Shop Foreman, The Apponaug Company, Division of Mills, Inc., Apponaug, R. I. Sponsors: G. H. Wood, N. Barlow.

Jose Polak—Chemical Consultant, Mexico, D. F., Mexico. Sponsors: W. B. Wilson, L. G. Atkins.

Walter E. Remblad—Wet Finisher, Dorlexa Dyeing & Finishing Co., Woonsocket, R. I. Sponsors: W. A. Lord, R. B. Taylorson.

Linton C. Reynolds—Chief Chemist, Ware Shoals Bleachery, Ware Shoals, S. C. Sponsors: H. Kiefer, Jr., F. E. Kilby.

Joseph J. Scarborough—Overseer of Dyeing & Testing, Newnan Cotton Mills, Newnan, Ga. Sponsors: A. W. Picken, J. M. Youngblood.

Henry F. Taylor, Jr.—Salesman & Demonstrator, A. E. Staley Mfg. Co., Decatur, Ill. Sponsors: W. L. Barker, K. Mackenzie.

John Vadas—Dyer & Foreman, Hodshon-Berg: Hat Corp. of America, East Norwalk, Conn. Sponsors: W. Ferrazano, S. G. Hoffman.

Joseph J. Walker—Colorist, Manhattan Print Works, Passaic, N. J. Sponsors: A. F. Haas, J. S. Lange.

George A. Wolf—Asst. Dyer, Manhattan Print Works Division, Waldrich Company, Passaic, N. J. Sponsors: A. F. Haas, J. S. Lange.

JUNIOR

Albert G. Hoyle—Sponsors: E. E. Fickett, H. C. Chapin.

Jack D. Joffe — Research Chemist, Lawrence Print Works, Lawrence, Mass. Sponsors: A. C. Merrill, G. O. Linberg.

Frank A. Tranfaglia—Chemist, Hat Corp. of America, Cavanagh Research Division, South Norwalk, Conn. Sponsors: W. Ferrazano, S. G. Hoffman.

ASSOCIATE

Jeremiah J. Sullivan—Sales Representative, Kelco Co., New York, N. Y.

ADDITIONAL MEMBERSHIP APPLICATIONS

SENIOR

Eugene R. Adair—Salesman, F. H. Ross Chemical Co., Charlotte, N. C. Sponsors: T. R. Smith, L. G. Atkins.

Ulysses S. Almond—Dyer, Knitting Dept., Wiscassett Mills Co., Albemarle, N. C. Sponsors: T. R. Smith, C. H. Morris.

Frank O. Bauer—Textile Chemist, Morgan Dyeing & Bleaching Co., Rochelle, Ill. Sponsors: L. Hoehn, B. H. Sharman.

Henry A. Benjamin—Overseer, Dyeing & Finishing, Dodgeville Finishing Co., Dodgeville, Mass. Sponsors: E. A. Whalen, R. F. Wein.

Maximilian Bergman—Chief Chemist, W. Robinson & Son, Woodbridge, Ontario, Canada. Sponsors: L. P. Brick, C. D. Ehrengart.

George G. Byler—Asst. Professor of Chemistry, Textile Institute, Philadelphia, Pa. Sponsors: P. Theel, G. R. Decnyf.

William M. Campbell—Foreman, Dye House, Hope Webbing Co., Pawtucket, R. I. Sponsors: A. Corry, R. W. Joerger.

Anthony Cupo—Boss Textile Dyer, Horn Piece Dye Works, Garfield, N. J. Sponsors: W. W. Barre, H. C. Spatz.

Martin R. Freney—Officer in Charge, Central Wool Committee Testing House, Sydney, Australia. Sponsor: H. C. Chapin.

Frank Gay—Head Dyer, Plymouth Dye Works, Paterson, N. J. Sponsors: H. E. Kampf, F. W. Swan.

Gerald J. Gorman—Chemist, Philadelphia Navy Yard, Philadelphia, Pa. Sponsors: M. E. Haines, F. V. Traut.

Ivan Gubelmann—Div. Mgr., Dyestuffs Div., E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. Sponsors: E. J. Monaghan, C. F. Schaumann.

Artaki Gurdjian—Managing Director, Societe d'Entreprises Commerciales en Egypte, Alexandria, Egypt. Sponsors: W. B. Wilson, H. E. Hager.

Philip S. Hewett — Research Chemist, Reichhold Chemicals, Inc., Detroit, Mich. Sponsors: S. V. Cottrell, R. P. Cole.

Almon G. Hovey—Director of Research, Reichhold Chemicals, Inc., Detroit, Mich. Sponsors: S. V. Cottrell, R. P. Cole.

Arthur E. Irvine—Technical Representative, Halowax Products Div., Union Carbide and Carbon Corporation, New York, N. Y. Sponsors: J. R. Redmond, E. C. Bertolet.

Fred C. Jones—In charge of Finishing, Dyeing & Scouring, Faribault Woolen Mill Co., Faribault, Minnesota. Sponsors: J. G. Stott, A. T. Brainerd.

Wells J. Kapinos—Overseer, Dyeing & Slashing, Monument Mills, Housatonic, Mass. Sponsors: D. H. Searle, C. M. Braham.

Edward H. Keys—Product Development Manager, Boyle & Pilkington Ind., Inc., Philadelphia, Pa. Sponsors: J. P. Conaway, B. C. Bond.

Earl King—Manager, Textile Laboratory, Corn Products Sales Co., Greenville,

S. C. Sponsors: C. N. Rabold, A. Fisher, Jr.

Elmer E. Knapp — Dyehouse Foreman, Bear Brand Hosiery Co., Kankakee, Ill. Sponsors: F. J. Acker, E. J. Sindt.

Richard R. Kolb—Hosiery Dyer, Nolde & Horst Co., Reading, Pa. Sponsors: A. E. Koch, A. J. Carbone.

Philippe P. LaFontaine—Managing Director of Dyeing, Finishing and Printing, Tinturaria Brasileira de Tecidos, San Paulo, Brazil. Sponsor: C. A. Heydon.

Alexander Leith, Jr.—Manager of Philadelphia office, Dow Chemical Co. Sponsors: A. E. Raimo, J. P. Conaway.

Joseph F. Melody—Colorist, Norwalk Hat Co., Norwalk, Conn. Sponsors: W. Ferrazano, C. C. Knights.

Louis Noguier—Managing Director of Dyeing, Finishing & Printing, Cia Argentina Tintoreria y Apresto, Quilmes, F.C.S., Argentine. Sponsor: C. A. Heydon.

William C. Parker—Manager of Dyeing & Finishing, Collins & Aikman Corp., Plant E, Roxboro, N. C. Sponsors: G. R. Currier, T. R. Johnson.

Matthew J. Quigley—Chemist, Aridye Corp., Fairlawn, N. J. Sponsors: A. P. McLean, W. W. Chase.

Bernard Francis Rivers—Dyer, Dorlexa Dyeing & Finishing Co., Woonsocket, R. I. Sponsors: W. A. Lord, R. B. Taylorson.

Edmund Grubb Robinson—General Manager, Organic Chemicals Dept., E. I duPont de Nemours & Co., Inc., Wilmington, Del. Sponsors: C. F. Schaumann, E. J. Monaghan.

Edward J. Sands—Overseer of Dyeing, Ware Woolen Co., Ware, Mass. Sponsors: H. F. Finlay, G. K. Plotica.

Hobart P. Shultz—Dyer, Magee Carpet Co., Bloomsburg, Pa.

Julian F. Smith—Tech. Librarian & Editor, Inst. of Textile Technology, Charlottesville, Va. Sponsors: L. A. Olney, H. C. Chapin.

Robert R. Smith—Hosiery Dyer, Stimpson Hosiery Mills, Inc., Statesville, N. C. Sponsors: R. H. Smith, H. B. Dixon.

Milfred L. Staples—Chemist in charge Quality Control Testing Laboratory, Ontario Research Foundation, Textile Dept., Ontario, Canada. Sponsors: A. C. Goodings, W. D. Appel.

Murray M. Swartz—Salesman and Demonstrator, Clarion Chemical Corp., Newark, N. J. Sponsor: H. E. Smith.

Norman J. Timmons—Tech. Engineer, Resinous Products & Chemical Co., Div. of Rohm & Haas Co., Philadelphia, Pa. Sponsors: J. R. Redmond, H. F. Lawton.

William Ross Wands—Gen. Overseer of Bleaching, Dyeing & Finishing, The Erwin Cotton Mills Co., Cooleemee, N. C. Sponsors: J. E. McNeely, W. J. Fullerton.

William E. Wanstall—Manager of Sales, Textile Dept., Reichhold Chemicals, Inc., Elizabeth, N. J. Sponsor: L. S. Lang.

Lawson H. Wheeler—Dyer, Dorlexa Dyeing & Finishing Co., Woonsocket, R. I. Sponsors: W. A. Lord, R. B. Taylorson.

A. C. Whitford—Director of Research Dept., S. Stroock & Co., Newburgh, N. Y. Sponsors: P. J. Kennedy, S. M. Conn.

Vernon Woodside—Tech. Representative, Mathieson Alkali Works, Inc., Charlotte, N. C.

ASSOCIATE

Fred G. Clark—Plastics Development, Bakelite Corp., Bound Brook, N. J.

Samuel H. Hart—Sales Manager, Hart Products Corp., New York, N. Y.

Dario Mejia—Technical Director and Supt., Cia. de Tejidos Union, S.A., Medellin, Colombia.

Jesse Wales Stribling—Editor of "Cotton," Atlanta, Ga. Sponsors: W. B. Griffin, J. C. Cook.

STUDENT

Alan Roth—Philadelphia Textile School. Sponsor: P. Theel.

Application for transfer to Senior membership, *Bernard J. Morway*.

—♦ ♦—

MEETING, SOUTH CENTRAL SECTION

THE September meeting of the South Central Section was held Saturday evening, September 9th, 1944, at the Patten Hotel in Chattanooga, Tennessee.

Dinner was served at 7:00 P.M. and attended by seventy guests and members. The guest speaker of the evening was E. R. Hopkins of Stonecutter Mills, Spindale, N. C. He gave an interesting talk on "Dyeing and Finishing of Acetate and Rayon Piece Goods."

Another feature of the meeting was the "Hosiery Question and Answer Program." J. A. Crumley, Hosiery Processing Co., Rossville, Ga., led the discussion on the hosiery problems.

The next meeting is the regular meeting for election of officers and the Chairman appointed a nominating committee, consisting of: W. P. Clement, C. J. Horne, F. L. Kibler, W. S. McNab and C. C. Cayce.

Respectfully submitted,

R. W. Freeze, *Secretary*.

A. A. T. C. C.
PERSONNEL SERVICE
Atlantic City Meeting
October 12-14, 1944

For further information, see July 31, 1944, issue of
AMERICAN DYESTUFF REPORTER

This service is free to all A.A.T.C.C. members!

CALENDAR OF COMING EVENTS

Annual Meeting, Hotel Claridge, Atlantic City, N. J., October 12, 13 and 14, 1944. Auspices of Philadelphia Section.

Meeting, Northern New England Section, October 20, 1944, Hotel Manger, Boston, Mass. Speaker: Lt. Col. John H. Talbott, Climatic Research Laboratory, Q.M.C. "Cotton and Woolen Clothing and Equipment for the Army."

Meeting, Rhode Island Section, October 27, 1944.

Annual Meeting, Piedmont Section, Hotel Charlotte, Charlotte, N. C., November 3, 1944. R. W. Armstrong, President of the Union Bleachery, Greenville, S. C. will be the banquet speaker.

Meeting, New York Section, November 17, Symposium on "Recent Developments in Synthetic Fibers and their Uses in Fabrics."

Meeting, Philadelphia Section, November 17, 1944.

Meeting, Southeastern Section, Atlanta Athletic Club, Atlanta, Ga., November 25, 1944.

—♦ ♦—

MEETING, PHILADELPHIA SECTION

A MEETING of the Philadelphia Section was held on Friday evening, September 29th, 1944, in the Mirror Room at the Hotel Philadelphian.

A pep talk was given by Chairmen of each Committee for the Annual Meeting to be held in Atlantic City on October 12th, 13th and 14th. This was followed by movie shorts on Electronics and War Communique No. 11.

There were 72 present for dinner and 85 at the meeting.

Respectfully submitted,

A. E. Raimo, *Secretary*.

• ABSTRACTS FROM CONTEMPORARY JOURNALS •

WAR LENDS IMPETUS TO PROOFING FINISHES. C. Norris Rabold. *Textile World.* August 1944. *94*, 8, 90.

Three types of finishes, used in large quantities by the armed forces, will be of paramount importance in the cotton goods industry following the war. These are flameproofing, mildewproofing, and waterproofing, used alone or in combination.

Chemical applications do not make cotton entirely fireproof in the sense that asbestos is fireproof; rather they render the fabric hard to ignite and prevent its bursting into flame when fire is applied. Heading the list of flameproofing agents are various mixtures of borax and boric acid. Other products in use are: ammonium salts, sodium and potassium salts, salts of some of the heavier metals (calcium, magnesium, zinc, iron, lead, etc.) organic compounds such as ammonium sulfamate and the chlorinated hydrocarbons. Disadvantages of most of the inorganic salts include the fact that many are water soluble, those that can be precipitated within the fiber very often impart an objectionable odor, high concentrations usually must be used (imparting a harsh hand). Chlorinated paraffin is suitable for outdoor use, being insoluble in water, but most chlorinated hydrocarbons are soluble in the common dry-cleaning solvents. Future formulations should make the finishers' job easier and simpler in producing satisfactory flameproofed cotton fabrics.

Extreme conditions in the tropics caused the armed forces to seek improved mildewproofing agents. Many fungicides have been applied but none are ideal for one reason or other. In particular, solvents used in application may be inflammable and the fumes toxic, some require the use of a two-bath method, non-uniformity sometimes results because of the method of handling, some lack durability, some are soluble in water or common solvents, some impart an objectionable color to the fabrics. Some of the drawbacks are not too important as the use to which the treated fabric is put may take care of the objection. Expanded use of mildewproofing agents in the post-war period is indicated.

Both waterproof and water-repellent finishes have greatly increased in use during the war period. The durable-type repellents, because of their resistance to repeated launderings and dry-cleanings have been applied in large quantities to military wearing apparel. The less permanent repellents of the wax-aluminum-emulsion types have also had extensive applications. The wax-repellent types have been used for retreating durable finished fabrics in the field. Waxes dissolved in organic solvents have also been largely used. Both the wax-emulsion and wax-solvent types have been used in conjunction with mildewproofing and flameproofing agents, since it is possible to combine all three into a single product. Present day raincoats coated with a vinyl resin or synthetic rubber offer durability, compactness and equal resistance to the much heavier raincoat previously in vogue. The field of water-repellency will show a tremendous increase after the war in the treatment of cotton fabrics for civilian use.

PIGMENT PRINTING AND DYEING. Olive - Sue Linkletter, *Rayon Textile Monthly,* July, 1944, 25, 7, 82 (342).

This is an abstract of a paper read before the American Association of Textile Technologists. Advantages claimed for the pigment method of coloring textiles are: no development necessary to bring up the shade, ease of color matching and color correction, simple to blend pigments for textile application, reduction of off-shade yardage, uniformity of color throughout the run, high sunfastness of colored fabric, proper selection of binding resins produces many fastness properties.

Heavy bodied water-in-oil emulsions are used for textile printing. These prints have excellent definition. The oil surface of the emulsion wets the metal engraving and transfers readily to cloth. After printing it is only necessary to dry the print and cure it a minute to set the color permanently.

Thinner bodied emulsions are used for pad-dyeing. For dyeing, both types of emulsion are used: water-in-oil and oil-in-water. The decision as to what type to use is determined by the circumstances involved.

There are three essentials for satisfaction from pigmented textiles:

1. Proper formulation of the pigmented-resin-emulsion for the particular job.
2. Proper application.
3. Proper curing.

TRADE NOTES • NEW PRODUCTS

• COLOR FILM ON TEXTILES

The only showing of the Textile Sound and Color Film this year under the auspices of the Evening Textile Courses will be held on Monday, October 16th, at 7 P.M. in Room 309, Havemeyer Hall, Columbia University, 117th Street and Broadway, New York City.

• ACETYL PEROXIDE

A process for making solutions of acetyl peroxide, which are said to be safe to handle, has been developed by the Buffalo Electro-Chemical Company, Inc., Buffalo, New York.

This chemical has been the subject of many investigations for over 80 years. It was first prepared by Brodie in 1863 who reacted barium peroxide with acetic anhydride in ether solution. Vanino, Clover, Richmond and others continued this work, and in 1909 Gambarjan succeeded in preparing acetyl peroxide by reacting sodium peroxide with acetic anhydride. He studied the properties of acetyl peroxide and describes the product as highly explosive. Later on Kharasch, in "The Journal of the American Chemical Society," describes acetyl peroxide as "an outstanding peroxide of great usefulness," but adds that it has to be "used on the spot (of manufacture) because of its sensitivity."

With the great developments in the production of synthetic plastics and elastomers in recent years, acetyl peroxide has again come to the foreground, as it was found to be one of the outstanding polymerization catalysts. Since 100 per cent acetyl peroxide cannot be shipped, used, or even manufactured on a large scale, the Buffalo Electro-Chemical Company carried out extensive research work to overcome these difficulties. The product now available is a 30 per cent solution of acetyl peroxide in dimethylphthalate. This solution, it is stated, is a water-white, non-explosive liquid, immune to shock and impact. It represents a form of acetyl peroxide that is suitable for commercial purposes and that can be handled with ease and perfect safety, the company claims.

Besides its value as a polymerization agent, other interesting applications are said to be its use as a germicide, a bleaching and oxidizing agent, and in vulcanization. It is said to have great possibilities in organic syntheses as it is very reactive and offers a source of active oxygen in a non-aqueous medium.

Because of the ever-increasing demand for chemical products, facilities, and per-

sonnel for war purposes, solutions of acetyl peroxide can be supplied, at present, in research quantities only. As soon as equipment can be installed, the product will be available in commercial quantities. The Buffalo Electro-Chemical Company, Inc., or its sales agency, the Becco Sales Corporation, both located in Buffalo, will be glad to furnish detailed information on this product and its application.

• JOINS AMERICAN VISCOSE CORP.

Thomas J. Culpepper has joined the Textile Research Department of the American Viscose Corporation as an assistant to Rene Bouvet, superintendent of the Textile Unit, it was announced recently.

Mr. Culpepper was previously production manager of the Ashland Corporation at Jewett City, Conn., and prior to that was associated for thirteen years with the Eagle & Phenix Mills of Columbus, Ga., his final position with that company being mill superintendent.

• NEW CHEMICAL COMPOUND

A new chemical compound, known as dichlorostyrene, from which heat resistant plastic or synthetic rubber can be made is announced by R. E. Gage, Director of Research and Development of The Mathieson Alkali Works.

According to Mr. Gage, the Mathieson plastic prepared from dichlorostyrene has excellent heat resistance and electrical insulating properties. Other plastics with either one of these properties are available, but the Mathieson plastic claims to be more resistant to heat than any plastic which combines excellent electrical characteristics with good strength, machinability and moldability.

The Mathieson rubber, which is made from dichlorostyrene and butadiene, was announced not long ago. It is now undergoing government-sponsored road tests, as the new rubber "seems to be the answer for heavy-duty trucks and buses," according to Mr. Gage.

Dichlorostyrene monomers are said to be highly active and readily polymerized. Polydichlorostyrene. the Mathieson plastic which is formed by this polymerization, resembles polystyrene in chemical resistance, solubility, and general appearance. It differs from polystyrene chiefly in resistance to heat, having a heat distortion point of 240°-265° F., as compared with 165°-190° F. for the polystyrene, it is stated. The Mathieson plastic is said to be more resistant to water. It is stable, showing no tendency to lose hydrochloric acid, it is stated, and may be molded by conventional methods, although some modifications in injection molding and extruding technique are necessary, due to the high distortion temperature and melting point.

Dichlorostyrene is said to be readily copolymerized with other unsaturated compounds, to form rubber-like products. The outstanding characteristics of the new rubber formed by the copolymerization of dichlorostyrene with butadiene is heat resistance. When compounded in a formula of GR-S type, this rubber is said to show much better oil resistance, tensile strength, elongation, tear and modulus at 300 per cent than GR-S. It also compares favorably with natural rubber in hot tensile strength, resistance to heat ageing, and to water absorption, and excels in oil resistance, it is stated.

It is reported that Mathieson rubber gives its best performance when it contains 30-40 per cent dichlorostyrene, or 12-16 per cent chlorine.

• NEW HIGH-MOLECULAR-WEIGHT GLYCOLS

Polyethylene glycol 600 and "Carbowax" compounds 1000 and 6000 are now being produced by Carbide and Carbon Chemicals Corporation, a Unit of Union Carbide and Carbon Corporation, in addition to polyethylene glycols 200, 300, 400 and "Carbowax" compounds 1500, 1540, and 4000. Polyethylene glycols 200, 300, 400, and 600 are viscous, light-colored, non-volatile liquids while the "Carbowax" compounds vary from soft to hard waxy solids. They are said to be very soluble in water and many organic solvents, but dissolve in aliphatic hydrocarbons to only a slight extent. The polyethylene glycols and "Carbowax" compounds are useful intermediates, show promise as plasticizers for glue, protein coatings, cork, etc., and also form interesting bases for cosmetic and pharmaceutical creams and ointments, it is stated.

Data giving the physical and chemical properties and industrial applications of these high molecular weight glycols is available. To obtain a copy it is suggested that the reader write Carbide and Carbon Chemicals Corporation, 30 East 42nd Street, New York 17, N. Y.

• DU PONT PERSONNEL CHANGES

The retirement of William Richter as general manager of the Fabrics and Finishes Department and the appointment of J. Warren Kinsman as his successor, effective October 1, were announced by E. I. du Pont de Nemours & Company. It was announced also that Dr. William Kirk, manager of the Chambers Works at Deepwater Point, N. J., will succeed Mr. Kinsman, who until now has been assistant general manager of the company's Organic Chemicals Department and Warren A. Beh, assistant sales director of the Nylon Division since 1940, has been promoted to director of nylon sales. Mr. Beh succeeds Robert A. Ramsdell, who was recently appointed assistant manager of the Nylon Division. George S. Demme, district sales manager in the New York office of the Rayon Division will succeed Mr. Beh as assistant director of nylon sales.

• IMPREGNOLE CORP. APPOINTMENT

Edward F. Starke, general manager of the Impregnole Corp., makers of Norane and Impregnole water repellents, announces the appointment of Albert Leitstein to the sales and service staff. Mr. Leitstein has been associated for many years in the textile and allied fields.

Albert Leitstein

• QUARTERMASTER RESEARCH SEEKS TO DEVELOP BETTER, LIGHTER FABRIC COATINGS

A project to reduce further the weight of coated fabrics which a soldier must carry on his back in the form of a raincoat, poncho or other article of personal equipment has been undertaken by the Office of The Quartermaster General in cooperation with Brooklyn Polytechnic Institute and the National Research Council, the War Department announces.

In addition to the objective of reducing the weight of coated fabrics the research project will seek to improve the ageing characteristics, abrasion resistance, adhesion, low temperature flexibility, and other factors which are still not perfected. At the same time, the research will seek to develop new plasticizers for the plastics used in fabric coatings, due to the shortage of phthalate plasticizers now widely used.

Basic research in the new program will be carried on at Brooklyn Polytechnic Institute under the direction of Dr. Herman Mark of that institution, cooperating with Captain William H. Aiken, Lt. Albert Luther James and William McGowan, representing the Plastics Section of the Research and Development Branch, Office of The Quartermaster General, Industrial organizations in the plastics and tex-

tile industries will cooperate in the research and development of samples, and an advisory panel of industrial technologists and scientists from the cooperating agencies and industries will be set up, under the National Research Council. The National Bureau of Standards and the R. H. Macy Laboratory will aid in the testing of fabrics developed, and the Philadelphia Quartermaster Depot will cooperate in the applications of the finding to actual items procured by the Quartermaster Corps.

The project on coated fabrics is to be carried on in addition to a program, similarly set up on a cooperative basis, which is seeking to develop new types of plastic films and methods for controlling water-resistance and other characteristics of plastic films widely used in protective coverings for food, equipment and other supplies being shipped to our armed forces in all parts of the world. This project, too, is being conducted at Brooklyn Polytechnic Institute.

While both projects involve the use of plastics, the "film" project deals only with so-called unsupported films, that is, sheets of material made wholly from synthetic resin or other plastics, whereas the coated-fabric project deals with the application of a coating of some sort of plastic to a woven fabric, or cotton, nylon or other material, to make it waterproof, toughen it, or to give it other desired characteristics.

• ARMY-NAVY "E" AWARD

Employees were given the entire spotlight and all honors in the official acceptance by them for the Brown Instrument Co., Philadelphia, precision industrial instrument division of Minneapolis-Honeywell Regulator Co., of the third Army-Navy "E" Award for war production excellency. Ceremonies took place August 15.

All the workers, said Mr. Evleth, vice president and general manager, have been chiefly responsible for the successful efforts the company has made for war. It is because of that fact, he added, that the company wanted to omit from the acceptance ceremonies all company officials and executives, likewise representatives of Army and Navy.

• EXPAND FACILITIES

H. B. Higgins, President, Pittsburgh Plate Glass Company, has announced plans for a $330,000 addition to the Company's production facilities at their Creighton, Pennsylvania plant, already one of the world's largest plants for the production of polished plate glass, laminated glass products, and glazed assemblies for aircraft. This addition will even further increase its capacity for the production and assembly of aircraft turrets, blisters, noses and canopies.

The new building will be 108 by 180 feet, and its construction has been approved by WPB. It will be located between the plate glass plant and laminating and assembly plants, on ground already owned by the Company.

Harry B. Bryans, President, American Standards Association, accepting award from Brig. General Stewart E. Reimel at a ceremony at the Waldorf-Astoria, New York, Sept. 14, 1944. Left to right—H. S. Osborne, Chairman, ASA Standards Council; P. G. Agnew, Secretary, ASA; Brig. General Reimel; and Mr. Bryans.

• ASA RECEIVES DISTINGUISHED SERVICE AWARD

On September 14 at a luncheon held at the Waldorf Astoria, New York City, the Army Ordnance Department presented its Distinguished Service Award to the American Standards Association "In recognition of outstanding and meritorious engineering advisory services in war and peace, for the development, manufacture and maintenance of Ordnance materiel." In accepting the award, which has thus far been presented to only one other organization, Henry B. Bryans, President of the ASA, said that he was "merely acting as the channel of transmission to the numerous groups and individuals who have done the work." Mr. Bryans pointed out that much of the war work of the ASA has been made possible because the ASA occupies a position as a federation of trade and technical associations and government departments and because of its unique position in the field of standards of a regulatory nature.

• COLEMAN PH BUFFER TABLETS

A sample of (5.00 pH) of the new Coleman buffer tablet will be supplied to any chemist or metallurgist who requests it on his company letterhead. The sample tablet is said to have a pH of exactly 5.00 pH when diluted in 100 ml. of warm distilled water, and provides a simple and accurate method of preparing buffer solutions for the laboratory.

These buffer tablets are available in steps of 0.20 pH over the range of 2.00 to 12.00 pH. Twelve tablets of the same pH are hermetically sealed in a glass vial which lists at $2.00. An accurate buffer solution, it is stated, can be prepared quickly and economically by dropping one buffer tablet in 100 ml. of warm distilled water. The resulting solution is said to be accurate within 0.20 pH. Requests should be mailed to Burrell Technical Supply Co., 1936-42 Fifth Ave., Pgh., Pa.

• DU PONT PROMOTIONS

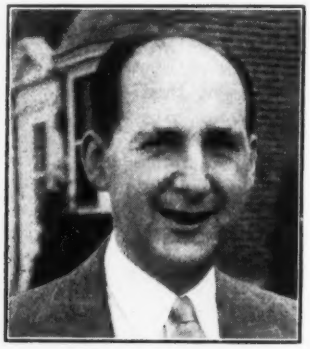
Robert J. Goodrich, formerly assistant manager of the du Pont Chambers Works, has been promoted to manager, succeeding Dr. William Kirk whose appointment to the position of assistant general manager of the Organic Chemicals Department was announced recently. Dr. Samuel Lenher succeeds Mr. Goodrich as assistant manager of the Chambers Works.

• AMERICAN ANILINE PRODUCTS REMOVAL

The Providence, R. I. office of American Aniline Products, Inc., will be located at 171 Pine Street after October 1.

• HART PRODUCTS APPOINTMENT

Hart Products Corporation of 1440 Broadway, New York, announce the appointment of Thomas H. Hart as their representative covering Pennsylvania and nearby states. Mr. Hart is a graduate of



Thomas H. Hart

Philadelphia Textile School and is a member of the American Chemical Society, Pennsylvania Chemical Society, Phi Psi Fraternity as well as the A.A.T.C.C. He has had 13 years of experience in the field of textile wet processing including the application of permanent finishes and synthetic chemicals. His duties with Hart Products Corp. will include sales, technical advice and demonstrations of the well known Hartex Textile Chemicals.

• CHINA-JAPAN REPORT, SECOND EDITION

Due to the heavy demand for the report "The Textile Industries of China and Japan—Post-War Opportunities and Problems for America," by Fessenden S. Blanchard, president of the Textile Research Institute, Inc., a second edition has been published by the Institute. This report is based on the author's own first-hand experience in the Orient, plus his close association with well-informed sources versed in recent developments in those countries. Copies of the report may be secured from the Textile Research Institute, Inc., 10 East 40th Street, New York 16, N. Y., at $1.00 each, postage paid to any point in the United States or Canada.

• ROT-PROOFING PROCESS AVAILABLE

Reflecting the patent pooling policy generally followed by American industry to facilitate war production, Roxalin Flexible Finishes, Inc. of Elizabeth, N. J., owners of a patented process for rot-proofing aircraft fabrics, announce that free licenses are being granted to aircraft manufacturers who are required by the Navy to employ this process. It is claimed that a long program of tests by the government and commercial aircraft lines have shown that this fabric-finishing method extends the life of planes operating in tropical climates where heat and humidity stimulate fungi growth causing rapid deterioration of fabric-covered wing and tail surfaces.

Tried out for two years by Pan American Airways and American Export Airlines, the process was declared to provide an effective solution to this problem; it is stated that many planes, the fabrics on which previously had to be renewed after four months, now show no deterioration due to fungi after more than a year in tropical service.

As a result of these tests, confirmed by the Bureau of Aeronautics and the National Bureau of Standards, the Navy Department recently issued a specification to the aircraft industry making it mandatory to rot-proof fabric on all navy planes by a method covered in the patent held by Roxalin. It is expected that similar action will be taken shortly by the War Department with respect to army planes.

The principles embodied in the method described in the Navy Department specifications have been available commercially for several years in the Emycel Fabric Finishing System, owned by Roxalin. This is a spray process which, it is claimed, accomplishes in 4 coats what other processes require 7 to 8 coats to achieve. The process employs a high solids, high viscosity material which is reduced to sprayable low viscosity by heating. On application it deposits full solids content without waste of solvent thinners, thus providing adequate coverage and smoothness in the minimum number of coats.

After the war, licensing of the process will go on a normal commercial basis.

• GLYCO OPENS MEXICAN OFFICE AND FACTORY

The Glyco Products Co., Inc., Brooklyn, New York, announces the opening of a factory and offices in Mexico City. The Mexican Company, known as Productos Quimicos Glyco, S. A., is located at Cipres Num. 355, Mexico D. F., Mexico, and is under the direction of Dr. E. Rios and Dr. A. Graf, both Mexican chemical engineers of considerable experience.

This company is manufacturing many of the products of the American parent company, particularly those which can be made from Mexican raw materials. They are also acting as exclusive sales agents for all the other products manufactured by the Glyco Products Co., Inc., which are not, at present, being produced in Mexico.

• BLENDING OF TEXTILE FIBERS

Blending of textile fibers to produce new fabrics giving the public wider variety and better values is assuming increasing importance and should develop on a still larger scale after the war, according to the American Viscose Corporation.

Just as the steel and other metal manufacturers have found that by alloying they can greatly increase the variety and usefulness of their products and engineer them to meet specific needs, the textile industries are now learning how to "alloy" the available textile fibers. By such "alloying" or blending it is possible to produce fabrics possessing specific desired qualities that make them suitable for specific purposes.

Many blended fabrics, made by combining rayon, "Vinyon" or other man-made fibers with the natural fibers such as cotton and wool, possess qualities of beauty and texture that cannot be achieved by the use of a single fiber. The further development of this field of textile manufacture should mean an increased consumption of both cotton and wool in fabrics of this type.

• COMMERCIAL PRODUCTION OF SILICONE FLUIDS

Liquid silicones are in quantity production, it was announced recently by Dow Corning Corporation of Midland, Michigan. These new organo-silicon products have been available for many months under the name of Dow Corning Fluids but their use has been restricted to a few applications essential to the war effort. Recent expansion in production capacity now permits them to be offered for adaptation to any war use indicated by their unusual combination of properties.

Dow Corning Fluids are water white and are said to be characterized by an extremely low rate of viscosity change with temperature, compared to petroleum oils of equivalent viscosity. They also are said to have higher flash and fire points and a complete freedom from solvent or swelling effect on synthetic or natural rubber and on many kinds of plastics and are not affected by oxygen under pressure at ordinary ranges of temperature. Since they are resistant to oxidizing solutions, mineral acids, salts and alkalies, they are said to be useful as an impregnant for asbestos packing and gaskets in chemical pumps.

• NEW FINISH

A new finish that renders clothing, tents, draperies, wall hangings, paper decorations and wood surfaces not only flame resistant but mildew-proof, water- and weather-proof as well, has been developed by Vita-Var Corporation for the Army and Navy.

The new finish is said to be permanent, flexible and effective in all climates under

the most severe conditions and does not impair the tensile strength or life of the material treated.

Vita-Clor, the name of the finish, will be made available to the public as soon as Army and Navy requirements are met. It will be made in a clear finish and in a range of colors. Materials can be treated by dipping, spraying or by other standard processes.

• TEX RES. INST. REPORT

Progress in connection with two of the major projects of the Textile Research Institute, Inc., was reported to the board of directors at a meeting held in New York, Sept. 15. At the same time, and reflecting this acceleration in the Institute's program, there was reported a sharp increase in its membership.

Of the two major projects, one was covered in the report from Giles E. Hopkins, director of Applied Research, announcing the current program under study at the Institute's applied research laboratories in Princeton, N. J. This program includes an investigation to obtain basic data on the behavior of common textile materials when dried by application of radiant energy. The results will be of interest to all sections of the industry.

Progress on the economic research project was reported to the directors by Robert R. West, chairman of the Economic Research Committee, and Douglas G. Woolf, director of Economic Research. This project involves a study of the probable competitive position of the American textile industry in the post-war era. It is being financed by the Textile Foundation.

The Institute has increased its membership to 128 companies, it was announced by Maj. D. B. MacMaster, director of the Research Fund Committee. The report to the directors showed that 77 former members had rejoined under the new membership plan, and that 51 companies previously unconnected with the Institute had likewise joined. Former members which have not yet rejoined under the new plan were, for the most part, companies whose old memberships had not yet expired, it was explained.

• PHILA. TEX. INSTITUTE DRIVE FOR $2,000,000

The Philadelphia Textile Institute through The Philadelphia Textile Institute Foundation will shortly launch a nation-wide drive for $2,000,000. The oldest textile school in the country, now in its sixty-first year, plans to take the initiative to do its part in making ready for the important post-war era as it will apply to the industry and its contributing businesses. The Philadelphia Textile Institute has never appealed so broadly to the industry for funds, which will make possible many things now seen to be necessary for the future. Enlarged quarters; new mechanical equipment; new departments; additions to and the improving of the faculty; expanding the research work of the Institute and many other objectives which will add to and improve the present facilities. Russell C. Osborne, Vice-Pres., Rider - Osborne -Devine, Inc., has been named Chairman of the Campaign. The Foundation Offices are at the Institute Building, Broad & Pine St., Phila. 2, Pa.

• RAPID WATER ANALYSIS APPARATUS

The Aero-Titrater, a product of Chief Chemical Corporation, 1123 Broadway, New York City, is said to furnish the plant operator and laboratory technician with a rapid, precise method for the determination of hardness, calcium and magnesium in waters, both industrial and portable and is said to be widely applicable to water problems in the process industries. The apparatus is said to be simple and its operation easily mastered. It makes use of a new endpoint, based on the foammeter principle. This endpoint is said to be unmistakable and reproducible with a high degree of precision. Determinations are made within ten minutes and there is no waiting time to observe stability of lather. The operation is said to be foolproof and to give identical results with different operators. The instrument is supplied calibrated and ready for assembly and use. There are no moving parts to wear out and no delicate features to go out of adjustment. All vital parts are of durable plastic construction.

• FABRIC SHIFT TESTER

The United States Testing Company, Inc., has completed the building of an apparatus for measuring the yarn shifting resistance of woven fabrics. The Fabric Shift Tester accurately measures the amount of pressure necessary to create an objectionable opening in the fabric. Tests are made on materials after three launderings, to remove the bulk of finishing material and reduce the fabric to its lowest resistance to yarn shifting. Minimum standards will be set up for each class of consumer fabrics.

The Testing Company is preparing to manufacture the machine in its Precision Instrument Shop and these units will be available shortly.

Fabric Shift Tests are available to the trade—a half-yard sample of fabric is required to conduct the full test.

• ANNUAL MEETING, C.T.I.

The Cotton-Textile Institute, Inc., will hold its annual meeting at the Waldorf-Astoria Hotel, November 17. The meeting will be streamlined in line with ODT requirements. It will consist of a general session in the morning, a luncheon, and in the afternoon a series of committee or panel sessions at which problems confronting the industry will be discussed.

• CELANESE PATENT

A process by which cellulose acetate fabrics will have an improved resistance to water as well as having an increased ironing temperature and melting point is the subject of United States Letters Patent Number 2,358,387 granted to Celanese Corporation of America.

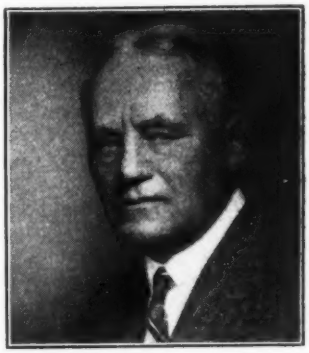
According to the process of the patent, yarns or fabrics of cellulose acetate or other organic derivatives of cellulose are treated in a liquid acidylation medium with a mixed anhydride of a polycarboxylic acid and a lower aliphatic monocarboxylic acid.

The treatment is carried out at a temperature of 100 to 180 degrees Centigrade and the liquid medium should be a non-solvent for the cellulose derivative material.

OBITUARY

CARL P. WALDINGER

CARL PETER WALDINGER, Treasurer of Chemical Manufacturing Company, Inc., Ashland, Mass., died September 10th after a brief illness. Associated with the dyestuff industry all his life, he established, in 1916, one of the first American-owned dyestuff and chemical manufacturing plants in Ashland, Mass. He was a



Carl P. Waldinger

member of the National Association of Manufacturers, The Synthetic Organic Chemical Manufacturers, the Drysalters Club and many other organizations connected with the industry. He is survived by his widow, Madge C. Waldinger and a son, Lt. Comdr. Robt. H. Waldinger, U.S.N.R.

Book Review

ORGANIC CHEMISTRY by Louis F. Fieser and Mary Fieser. Pages 1091—Price $8.00—Published by D. C. Heath & Company, Boston, Mass.

The above-mentioned book has been admirably written by the authors for it covers a wide variety of topics, including the development of the fundamental chemistry of the hydrocarbons, alcohols, acids, and other classes of organic compounds.

The book also covers the early history of organic compounds up to its present-day use. Among the subjects covered are The Nature of Organic Compounds, Saturated Hydrocarbons (Alkanes), Ethylenic Hydrocarbons (Alkenes), Acetylenic Hydrocarbons (Alkynes), Petroleum, Alcohols, Halogen Compounds, Carboxylic Acids, Aldehydes and Ketones, Amines, Stereochemistry, Ring Formation, Rubber, Carbohydrates, Proteins, Microbiological Processes, and many other interesting subjects.

The novel feature of the book is the inclusion of a number of chapters for optional reading dealing with significant applications of organic chemistry to technology and to the biological and medical sciences. Also included is an extensive body of factual data in the form of tables and citations under formulas.

Readers of the Reporter will be particularly interested in the chapters devoted to dyes and synthetic fibers, in which they will find considerable information of direct value to those interested in these two particular subjects.

—♦ ♦—

DYESTUFF NAMES

(Concluded from Page 428)

tion to oxygen at the time when the phlogiston theory was being supplanted by the newer discoveries of chemistry. Hence, due to the limited knowledge of nitrogen's full role, it was described by the two Greek words: "a" (not) and "zoe" (life). These yielded "azo" or "azote," and the former is applied to the modern azo dyes.

Up to this point, the colors have been taken from older lists, such as those contained in Matthews' Application of Dyestuffs. In so doing, a general historical progression has been secured. This includes, first, the earliest known dyes; next, the colors common to the Medieval period and later; and finally, those used in the nineteenth and in the early part of the present century.

However, when a selection from a modern list of coal-tar color is made, say, circa 1940, a different situation is encountered. The older dyes, identified more or less directly with their plant and animal sources, give way to group names having a different word-character. In some instances, these are composite, in that they combine curtailments of manufacturers' names with some characteristic of the type of dye. A few color groups selected at random will illustrate the point. Thus, "Amacid" and "Pontacyl" contain descriptive suffixes in addition to giving the name of the maker in abbreviated form. Others, such as "Xylene" and "Fastusol" are characterized only by some chemical or other property of the type of dye.

Combined with these, or in some cases, standing alone as a single dyestuff, one finds names having especial appeal from our point of view.

Of these, Coerulein presents somewhat of a problem. Specifically, it is a synthetic substance yielding green shades, but its roots have other possible translations. If "coeruleus" is considered, the terms dark green, dark blue, or even dark colored, apply. On the other hand, "cerulean" means a lighter blue, a sky blue.

Slightly similar in name but different in color, is Croceine. This comes from "crocin," the coloring substance, and a word-derivative of "crocus," the English form of many tongues for saffron. "Krokos" in Greek, "karkom" in Hebrew, and "kunkuma" in Sanskrit—all stand for a dye that was prominent in the colorist's repertoire for centuries.

Likewise, another dyestuff—erythrosine—is related to one previously traced. From the lichen, *Rocella tinctoria,* erythrin is obtained. This is the scientific form of a Greek word, "erythrean," meaning red or reddish. And while we are speaking of this color, the ever-lovely rose must not be neglected. Many are the shades encompassed by this simple four-letter word and to embrace them, the Greeks said "rodon." As a result, Rhodamine basks in the double beauty of both color and name.

The sulfur colors, as well as organic and inorganic thio compounds, have the Greek root, "theion" (sulfur), but if one sees Thioflavine, Latin must be summoned, because flavine (flavus) means yellow.

On the other hand, if we speak of "sulfur" as in the sulfanthrenes, we have one of the really interesting bits of word-history. Medieval English has it as "soulfre," Danish as "solfre," and Latin, quite identical with our own form, "sulfur." Obviously, these forms identify that yelloy element called "brimstone" in the Old Testament, and which is so vital to all industries, but behind them, in the Sanskrit, there seems to be a unique background. In this, there are two words—"culva," (copper), and "ari," (enemy), and from these we have not only "culvari" (pronounced with a soft c), enemy of copper, but an Old Spanish form, "acufre."

Gallocyanine, like Thioflavine, is another Latin-Greek duo. Galla (L.) means gallnuts, or oak-apples, caused by insects stinging oak trees, the effect of which causes the tree to put forth fragile spherical growths particularly rich in tannins. The remainder of the name is from the Greek "kyanos," dark blue.

Asphalts or bitumens are common to the organic chemistry of the twentieth century, but the Greeks also knew of them, albeit limitedly. Volatile forms of these, inclusively called "naphtha," were used as the ignitable substance for flaming arrows, and from the word we have the Naphthol colors as well as alpha- and beta-naphthol.

Light is not without its impressive contribution to color terminology. Probably as literally descriptive as any dyestuff name, is that of the fluorescent Eosine. For this, we are indebted to Greek mythology, wherein Eos, a young and beautiful winged maiden, ushers in the rosy light of day from the east. If one recalls the peculiar composite pink, with its cast of delicate yellow and green, resulting from a dilute solution of this dye, it will be seen that "Eosine" was chosen well and beautifully. The suffix "ine," or its shorter form "in," serves to give a sort of personal word-entity not only to this but to many compounds in chemistry. For example, in the case of the halogens, fluorine, chlorine, bromine, and iodine, the root of each has its specific heritage: from the Latin, fluere, "to flow"; and from the Greek, chloros, "light green," bromos, "stench," and iodes, meaning "like a violet." However the suffix may be spelled or pronounced, it serves to give these elements individuality when in combination with the root used.

Still other "light-bearers" are the Heliogen and Solantine colors. Many scientific words other than "heliogen" are derived from the Greek "helios," the sun, but "old sol" began its jocular present as the French "soleil," Italian "sole," Icelandic "sol," and many other variations. Our own word, sun, probably goes back through Anglo-Saxon and Gothic forms to the German form, "sonnen."

Phosphine dyes are not too far removed from Eosine, in their etymology, for while "Eos" is the dawn, "Phosphor" or "phosphoros" is a light-bringer — a morning star!

Bright Phosphor, fresher for the night,
By thee the world's great work is heard
Beginning.

Tennyson, In Memoriam

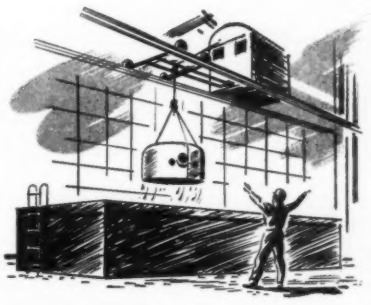
"...It took CHEMISTRY to realize the nation's wealth

American manufacturers once relied on *imported* camphor, an essential ingredient in many important products of industry. When war cut off these imports, however, the *domestic synthesis* of camphor was greatly enhanced by a substance which Hercules' chemists produced from wood turpentine . . . *Alpha-pinene.* This is just one example among hundreds of how Hercules research has helped bring to light the hidden wealth of our natural resources."

DAVID DIETZ, *Science Editor of Scripps-Howard Newspapers, Author, Pulitzer Prize Winner*

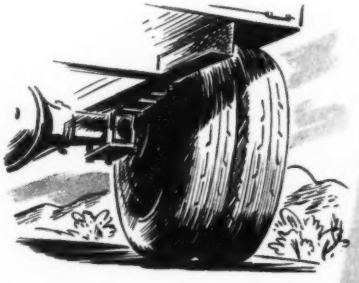
PROTECTING HEALTH from food contamination by flies and other insect germ-carriers is one of the jobs whose importance can hardly be exaggerated . . . a job now handled by a terpene chemical product. Thanite*, the modern toxic agent used in sprays, is in great demand.

WASHING WOOL—saving time. Yarmor* Pine Oil saves up to 30% of the time required for scouring and processing of wool. Yarmor is a wetting agent, lowering surface tension, emulsifying dirt and grease, producing fluffier, cleaner wool, helps get the most out of our wartime supply.



GREASE-GETTER. Another wetting agent is Dresinate*. Dresinate is speeding the production drive by making it easier for alkaline baths to replace solvent baths for *cleaning metals.* Effective in both strong and weak alkaline baths, it has no harmful chemical action on soft metals.

BEST SOLVENT. For many uses besides paints, there is conceded to be no better solvent than turpentine. Hercules produces the finest clear, pure, water-white turpentine which thins and spreads paint without weakening its color, helps dry it fast.



LESS RUTS. Just a small amount of Hercules' amazing new product, Stabinol*, when properly mixed with the top few inches of soil, and then compacted, makes a completely water-proof surface—*preventing mud.*

HERCULES

TERPENE AND ROSIN CHEMICALS

offer answers to material problems in many industries

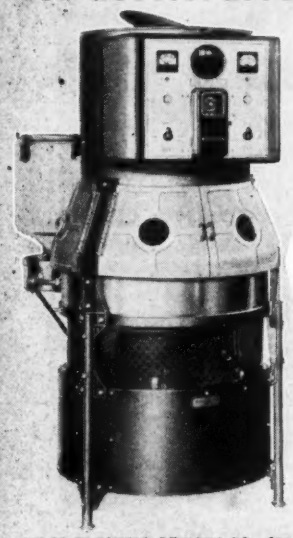
HERCULES POWDER COMPANY
INCORPORATED

993 Market Street, Wilmington 99, Delaware

*Reg. U. S. Pat. Off. NI-42

FADE-OMETER

for accelerated color fading



• Originated and made solely by Atlas. Used all over the world and accepted as the standard color testing machine by the textile industry for over a quarter of a century.

Specimens are rotated around the Atlas Enclosed Violet Carbon Arc—the closest approach to natural sunlight. Temperature automatically controlled. No loss of light intensity of arc during life of machine.

ATLAS ELECTRIC DEVICES CO., 361 W. Superior Street, Chicago, Ill.

ATLAS-OMETERS

WEATHER-OMETER ★ LAUNDER-OMETER ★ FADE-OMETER

LEATEX

CHEMICAL SPECIALTIES

for the

TEXTILE INDUSTRY

"Always Reliable"

LEATEX CHEMICAL COMPANY
2722 N. HANCOCK ST., PHILADELPHIA, PA.

QUALITY **RICHMOND** PRODUCTS

A Sluggish Machine is like a man with Rheumatism

Keep them Running with

POLYLUBES

The Positive Lubricant for Greater Efficiency.

Lasts longer — use only a third to a fifth of ordinary lubricants.

100% MINERAL OIL

Write for FREE Sample

RICHMOND OIL, SOAP & CHEMICAL CO., Inc.
153-155 RICHMOND STREET, PHILADELPHIA 25, PA.

THE STANDARD DE-SIZING AGENT

RAPIDASE

Dependable, speedy and economical de-sizing . . . Our technical staff always at your service.

● *for cottons rayons and mixed goods*

WALLERSTEIN CO., INC.
180 MADISON AVENUE, NEW YORK

Manufacturers of Dyestuffs and Chemical Specialties

We offer to the Textile and Allied Trades a full line of

DYESTUFFS DYEWOODS
CHEMICAL SPECIALTIES

PENETRATORS AND WETTING AGENTS
SULPHONATED OILS AND SOAPS
WATERPROOFING AND FLAMEPROOFING AGENTS
PERMANENT FINISHES AND SOFTENERS
CONVERTED STARCHES AND GUMS

MAY WE SERVE YOU?

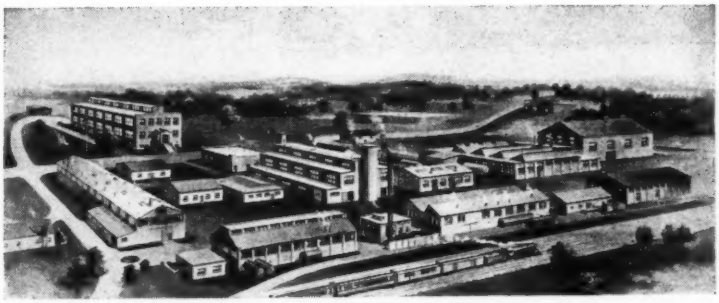
COMMONWEALTH COLOR & CHEMICAL CO.

MAIN OFFICE AND WORKS: Nevins, Butler and Baltic Streets, Brooklyn, N. Y.

Philadelphia • Chicago • Charlotte • Gloversville • Kansas City • Montreal

NYANZA

ANILINE & ALIZARINE COLORS
TEXTILE CHEMICALS



FACTORY AT ASHLAND, MASSACHUSETTS

NYANZA COLOR & CHEMICAL COMPANY, Inc.
215 WATER STREET NEW YORK CITY

FACTORIES:
CHEMICAL MANUFACTURING CO., ASHLAND, MASS. • NEW BRUNSWICK CHEMICAL CO., NEWARK, N. J.

BRANCHES:
Ashland, Massachusetts
549 West Randolph St., Chicago, Ill. • 635 Drexel Bldg., Philadelphia, Pa. • 115 S.W. Fourth Ave., Portland, Ore.
2657 Magnolia Ave., Knoxville, Tenn. • 304 E. Moorehead St., Charlotte, N. C.

CANADIAN AGENTS:
Charles Albert Smith Limited, 123 Liberty St., Toronto, Canada

Safe from Rain and Insect Pests

Field hospitals in the jungle operate under tropical conditions.

HYDROXY*
WATERSHIELD
AND WATERPROOF

are used by approved suppliers to the United States Government for processing textiles that may suffer deterioration from moisture.

(*Reg. U. S. Pat. Off.)

Kali

MANUFACTURING CO.

Manufacturing Chemists

427 Moyer Street — Philadelphia 25, Pa.

A Soap worthy of your consideration

NAMICO "C"

FLAKES · POWDER · SOLID

Fulling and scouring light weight fabrics, hosiery and yarns of all fibres

QUICK SUDSING and RINSING

ACCEPTED BY THE LEADERS

Technical and Laboratory Service

NATIONAL MILLING & CHEMICAL Co.
4601 NIXON ST. PHILADELPHIA 27 PA.
Manufacturers since 1896

Are You Having Color Control Troubles?

Color Control is an exacting operation requiring skill and the right equipment. EXACT WEIGHT Scales are the right equipment. By careful weighing color blending is no guess-work affair. These scales have clearly marked dials in fraction-ounces. Formulae compounding can be done exactly to formulae. You have no color control troubles.

Write for the details.

INDUSTRIAL PRECISION
Exact Weight Scales

THE EXACT WEIGHT SCALE COMPANY

13 W. Fifth Avenue — Columbus 8, Ohio
Dept. H, 1104 Bay St., Toronto, Canada

---

2 GOOD CHEMICALS FOR COTTON GOODS

V VIRGINIA

"VIRGINIA" (SODIUM) HYDRO

A dependable Hydrosulfite for Vat Dyeing and Stripping.

1. Crystalline, stable
2. Free-flowing; non-caking
3. Easily and Quickly soluble

Packed in 250 lb. *airtight* containers.

"VIRGINIA" (LIQUID) SO_2 THE IDEAL ANTICHLOR

The "Old Reliable" of the finishing plant. Low concentrations...

— remove active chlorine
— neutralize residual alkalinity
— eliminate excessive washing

Constant make-up by continuous flow to the pit. Shipped in steel cylinders containing 150 lb. net weight.

VIRGINIA SMELTING CO.
WEST NORFOLK, VIRGINIA

The Trend Toward

MAN-MADE YARNS

When you plan to produce fabrics in which rayon and other man-made yarns will replace cotton, wholly or in part, you will find your mechanical needs anticipated by such advanced equipment as *Van Vlaanderen Machines* of which these are representative. *Now in Use by leading Mills.*

Just two of an extensive line—

VAN VLAANDEREN TENSIONLESS JIG

Fabrics are guarded against harmful tension, while tautness is maintained to prevent wrinkles and creases from fraying during the dyeing process.

VAN VLAANDEREN DECATIZING MACHINE

Corrects a harsh hand, breaks or cracks, excessive lustre and the appearance of cloudy or blotchy dyeing. Van Vlaanderen patented blanket drying cylinder draws air continuously through blanket, preventing it from becoming overloaded with moisture, resulting in uniform decating and longer blanket life.

VAN VLAANDEREN MACHINE COMPANY

World's Largest Manufacturers of synthetic fabric processing machinery

370 Straight Street **Paterson, New Jersey**

An important assignment of SOLVAY Liquid Chlorine in textile bleaching operation is that of safe-guarding fabrics against *uneven colors* and *spotty bleaching.*

Economical and versatile, SOLVAY Liquid Chlorine is an effective bleaching agent and water conditioner. It is recognized for its controlled quality, highest standards of purity, and dependable uniformity—your assurance of satisfaction and performance.

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

40 RECTOR STREET **NEW YORK 6, N. Y.**

BRANCH SALES OFFICES:

Boston	Cincinnati	New Orleans	Pittsburgh
Charlotte	Cleveland	New York	St. Louis
Chicago	Detroit	Philadelphia	Syracuse

• CLASSIFIED ADVERTISEMENTS •

The rate for "Position Wanted" advertisements in this column is 2 cents a word—with a minimum of 50 cents per insertion. For all other types of advertisements—i.e., help wanted, machinery or supplies for sale—the rate is $6.25 per column inch or less per insertion.

WANTED: Salesman by a New Jersey Manufacturer of Boil-off compounds and textile finishes. Salary and commission. State qualifications and draft status. Box 576.

POSITION WANTED: Hosiery Dyer both technical and practical, with several years experience, capable of doing any hosiery dye job. Draft status 1-A-H. Box 592.

WANTED: Assistant dye house superintendent experienced in dyeing cotton, rayon, silk, both skein and package. Chemistry education and laboratory experience of primary importance. Must be able to supervise both dye house production and laboratory. Box 597.

WANTED: Chemist for southern laboratory of the textile division of a nationally known organization. Splendid opportunity, permanent. Give age, draft status, education, references, salary desired. Box 598.

WANTED: A textile specialty manufacturer who desires representation in the middle west. Box 599.

WANTED: Overseer for desize, scour, mercerize, boil off and tenter. Must be experienced, mechanically trained, willing worker and able to train help. Good salary and living conditions. Box 600.

POSITION WANTED: Chemist, dyer, and superintendent, fourteen years experience on cotton, rayons and wool, all types of colors, on package and piece goods machines. Desires position as head dyer or assistant to general plant manager. Textile school graduate. Box 601.

POSITION WANTED: Textile chemist, B.T.C. Three years experience in dyeing cotton, rayon, acetate and wool; also resins applied to same fibers. Veteran. Box 602.

FOR SALE: One Suter Tensile Strength and Elongation Tester. Perfect condition. Reasonable. Box 603.

POSITION WANTED: Textile chemist, 27, 2B, M.S. in chemistry, Phi Beta Kappa. 7 years industrial experience including 4 years as chief textile laboratory of large fabric firm and 1 year research textile chemical manufacturer. Knowledge of all phases of wet processing—publications—research cellulose, surface active materials, dyes, special finishes; knowledge plastics—desires to join staff of finishing plant or progressive chemical manufacturer. Research or production. Work must be essential. Please state approximate salary in reply. Box 604.

WANTED: Dyehouse chemist with two or three years' laboratory training and experience in practical dyeing for large rayon dyehouse. Give full details of technical background and practical experience. Persons engaged in war work need not apply. Box 605.

COLORIST-CHEMIST: For large progressive Screen and Roller printing plant in Massachusetts. Write complete details regarding experience and salary desired. Opportunity for aggressive capable man. Box 606.

POSITION WANTED: Textile chemist, 5 years experience, both in laboratory and plant work. Experimental, development and control work on printing, dyeing and finishing (resin) of cotton and rayons. Age, 26. Box 607.

WANTED: Colorist for standardization laboratory of dyestuff manufacturer. Location, East. State qualifications, education and salary desired. Box 608.

POSITION WANTED: Textile chemist, honorably discharged, long experience here and abroad in manufacturing chemical specialties for the textile industry, seeks connection with large textile dyer and/or printer who wishes to manufacture his own chemicals at very low cost. No expensive equipment needed. Manufacturers of chemicals also considered. Employed at present but available within one week. Box 609.

NOTE

Essential employees need release statement. Employees who are to be hired for critical occupations need release statement and U. S. E. S. consent.

The Annual

PROCESSING
REVIEW
NUMBER
will appear
DECEMBER 4, 1944

•

This issue will contain the papers presented at the Intersectional Contest to be held in Atlantic City in October.

NUODEX

MILDEW-PROOFING AGENTS

Copper, Zinc and Mercury Naphthenates — meeting all Government specifications—available in various concentrated forms for use in solvents or emulsions. Write for samples and use information.

NUODEX PRODUCTS CO., INC.
ELIZABETH, F, N. J.
NUODEX PRODUCTS OF CANADA, LTD., LEASIDE, ONT.

IT'S THE CHAMP!

To DIASTAFOR de-sizing agent go the championship honors for top quality, dependable performance, excellence of results. It's the champ of them all . . . backed by 36 years of leadership.

When you de-size with DIASTAFOR, your de-sizing problems can be forgotten. An ideal finish is assured . . . smooth, supple, flawless.

Try DIASTAFOR — it's the champ!!

For further information, see our technical man or write to —

FLEISCHMANN'S DIASTAFOR
Standard Brands Incorporated
Diastafor Division
40 Worth Street **New York 13, N. Y.**

DIASTAFOR
36 Years of Satisfactory Results

SOLVAY*

...KEYED TO TODAY AND TOMORROW

Today . . . Solvay Alkalies including Soda Ash, Caustic Soda and many other important related products are indispensable to manufacturers of electronic and communication instruments. These chemicals, employed in many vital operations, are supplied by 3 strategically located plants. Established in 1881, Solvay is America's largest source of alkalies.

Tomorrow . . . Solvay's progressive research will pace progress in the electronic field with newly developed chemicals. With extensive resources, facilities, and experience, Solvay will continue to manufacture the best of alkalies and help industries make new products. It will serve industry with comprehensive information and technical service.

SOLVAY

* The Solvay Process Company employs salt, limestone and ammonia to make Soda Ash, from which basic material Caustic Soda and other alkalies are derived

SODA ASH
AMMONIUM BICARBONATE
AMMONIUM CHLORIDE
PARA-DICHLOROBENZENE
CAUSTIC POTASH • CHLORINE

CAUSTIC SODA
POTASSIUM CARBONATE
SODIUM NITRITE • SALT
CALCIUM CHLORIDE
• MODIFIED SODAS

SOLVAY SALES CORPORATION
Alkalies and Chemical Products Manufactured by The Solvay Process Company
40 RECTOR STREET **NEW YORK 6, N. Y.**

CUT TIME AND COST—IMPROVE RESULTS IN ALL WET PROCESSING WITH BURK-SCHIER PINE SOLVENT XX

Burk-Schier Pine Solvent XX Reduces Surface and Interfacial Tensions . . . Wets, Penetrates, Suspends, Disperses . . . ids Detergents and Dyes. A Little Does a Lot and Does It Well.

COTTON: In the kier, Pine Solvent XX brings the liquor in contact with every fiber, leaves uniform bottoms that dye and finish more evenly. Boiling time is cut. Fibers are softer, fuller, more resistant to age-discoloration.

WOOL: Pine Solvent XX is valuable in raw-wool scouring . . . irreplaceable in fulling. From the raw stock it produces clean, soft, really white wool in prime condition for storage or further processing. In the fulling mill, it cuts time as much as 30% . . . costs no more . . . helps you meet contract delivery dates on time.

RAYON: In boiling off, Pine Solvent XX rapidly emulsifies gelatinous materials . . . is safe for the most delicate fabrics. Used in dyeing, it makes the fabrics wet out and sink quickly.

DYEING: Pine Solvent XX makes dye liquor penetrate the hardest fibers and heaviest seams. It gives an even, level deposit of dyestuff of uniform depth throughout every fiber. Loose dyestuff and impurities are suspended for washing out completely.

PRINTING: In printing paste, Pine Solvent XX wets pigments thoroughly, disperses them evenly, and holds them in suspension without agglomeration and until the design is on the fabric. Designs are sharp, colors bright and clear, no specks are formed.

BURKART-SCHIER CHEMICAL CO.
CHATTANOOGA, TENNESSEE
MANUFACTURING CHEMISTS FOR THE TEXTILE INDUSTRY

THE TEXTILE APPLICATION OF

METASOL

(CALGON)

U. S. PATENTS RE. 19,719; 1,979,926; 2,008,651; 2,041,448

METASOL is Sodium Hexametaphosphate, or CALGON. Its use has become general throughout the Textile Industry. Mills handling every type of fiber or fabric have found METASOL a valuable aid in conducting the wet-processing operations of Scouring, Dyeing, Bleaching and Finishing.

We have prepared a handbook for the convenience of users and prospective users of METASOL (or CALGON). In it we have assembled general and specific information concerning the textile application of METASOL. This data has been obtained through research and through study of practical mill operations. Write for your copy.

BURKART-SCHIER CHEMICAL CO.

CHATTANOOGA, TENNESSEE

MANUFACTURING CHEMISTS FOR THE TEXTILE INDUSTRY

Burkart-Schier Chemical Co.
Chattanooga, Tenn.

Please send copy of METASOL hand book.

Name_____

Company_____

Address_____

City_____ **State**_____

INDEX TO ADVERTISERS

Alrose Chemical Co.	
Althouse Chemical Co.	Second Cover
Amalgamated Chemical Co.	
American Aniline Products, Inc.	III
American Cyanamid & Chemical Corp.	Back Cover
American Dyewood Co.	
American Viscose Corp.	
Ansul Chemical Co.	
Aqua-Sec Corp.	
Aridye Corp.	
Arkansas Company, Inc.	XV
Arnold-Hoffman & Co., Inc.	
Atlantic Chemical Co.	
Atlas Electric Devices Co.	XX
Becco Sales Corp.	IV
Bick & Co., Inc.	
Blickman, Inc., S.	
Burkart-Schier Chemical Co.	XXVI
Butterworth & Sons Co., H. W.	
Calco Chemical Division, American Cyanamid Co.	
Campbell & Co., Inc., John	X
Carbide & Carbon Chemicals Corp.	
Carbic Color & Chemical Co., Inc.	XVI
Ciba Company, Inc.	
Colgate-Palmolive-Peet Co.	
Commonwealth Color & Chemical Co.	XXI
Du Pont de Nemours & Co., E. I.	
Dyestuffs Division	Front Cover
Electrochemicals Dept.	
Grasselli Chemicals Dept.	
Electro Metallurgical Co.	
Emery Industries, Inc.	
Exact Weight Scale Co.	XXII
Fancourt & Co., W. F.	IX
Gardinol Corp.	
Geigy Company, Inc.	
General Chemical Co.	
General Dyestuff Corp.	VII
Glyco Products Co., Inc.	
Hart Products Corp.	XI
Hercules Powder Co.	XIX
Hooker Electrochemical Co.	
Houghton & Co., E. F.	
Industrial Rayon Corp.	
Kali Manufacturing Co.	XXII
Kelco Co.	
Kilcommons Chemicals Corp.	
Laurel Soap Mfg. Co., Inc.	
Leatex Chemical Co.	XX
Leeds & Northrup Co.	
Mathieson Alkali Works, Inc.	
Monsanto Chemical Co.	
National Aniline Division, Allied Chemical & Dye Corp.	XVIII
National Carbon Co., Inc.	
National Milling & Chemical Co.	XXII
National Starch Products	
New Jersey Zinc Co.	
Nuodex Products Co., Inc.	XXV
Nyanza Color & Chemical Co.	XXI
Onyx Oil & Chemical Co.	V
Pabst Sales Co.	
Perkins & Son, B. F.	VI
Philadelphia Quartz Co.	
Procter & Gamble	VIII
Quaker Chemical Products Corp.	
Refined Products Co.	
Richmond Oil, Soap & Chemical Co., Inc.	XX
Rohm & Haas Co.	XXVIII
Royce Chemical Co.	
Sandoz Chemical Works	
Scholler Bros., Inc.	Third Cover
Socony-Vacuum Oil Co., Inc.	
Solvay Sales Corp.	XXIII, XXV
Standard Brands, Inc.	XXV
Tennessee Eastman Corp.	XIII
Union Carbide & Carbon Corp.	
Van Vlaanderen Machine Co.	XXIII
Virginia Smelting Co.	XXII
Warwick Chemical Co.	
Wallerstein Co., Inc.	XX
Westvaco Chlorine Products Corp.	
Wolf & Co., Jacques	XII
Young Aniline Works	

NEW NON-TECHNICAL MAGAZINE TO COMPLEMENT AMERICAN DYESTUFF REPORTER

HOWES PUBLISHING COMPANY in May of this year acquired the Textile Colorist, a monthly publication which, since 1879, has been devoted to the technical phases of textile processing. As this field is identical with that served by our AMERICAN DYESTUFF REPORTER, the scope of the TEXTILE COLORIST has been changed to a non-technical business and style publication for the textile converting field.

The editorial content of the TEXTILE COLORIST AND CONVERTER includes style and color forecasts, non-technical articles on all new finishes and processes available to the converter. In other words, the converter will be informed as to what can be accomplished in the finishing of textiles—the merits of certain finishes as to fastness of color—water repellency—mildew and moth proofing—wearability—style appeal, etc. But HOW these results are accomplished will be left to the AMERICAN DYESTUFF REPORTER whose technical standing in the industry is well known.

The AMERICAN DYESTUFF REPORTER will continue to serve the technical phases of color and finishing technique, and now with the establishment of the TEXTILE COLORIST AND CONVERTER as a non-technical business and style publication, our field of service to our industry is definitely broadened.

The TEXTILE COLORIST AND CONVERTER is published under the editorial direction of Miss Ruth Corby, assisted by an Editorial Advisory Board representative of various branches of the textile industry.

The TEXTILE COLORIST AND CONVERTER will be issued monthly to the following groups:

a Textile Converters
b Textile Selling Agents
c Textile Buyers of Chain Stores
d Textile Buyers of Large Jobbers
e Leading Cutters-Up and Dept. Stores
f Fabric Dyers and Finishers, etc.

The first issue of the new publication appears this month.

M. D. REESER,
Business Manager.

HOWES PUBLISHING COMPANY, 440 Fourth Avenue, New York 16, N. Y.

The same...

high quality at low cost

consistently maintained

in peace and war

LYKOPON

SODIUM HYDROSULFITE

LYKOPON *is a trade-mark, Reg. U. S. Pat. Off.*

3 awards to Rohm & Haas Company and its associated firms, The Resinous Products & Chemical Company and Charles Lennig & Company.

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Manufacturers of Chemicals for the Textile, Leather and other Industries . . . Plastics . . . Synthetic Insecticides . . . Fungicides . . . Enzymes

Always mistily sheer and charming, exquisitely soft and dainty—miles more wear—when Milady's hose and clothing fabrics are *DuraBeau* finished.

DuraBeau finishes
Reg. U.S.A. and Canada

SCHOLLER BROS., Inc., Mfrs. of Textile Soaps, Softeners, Oils, Finishes · Collins & Westmoreland Sts., Phila. 34, Pa. · St. Catharines, Ont., Can.

By Ordering DECERESOL* OT

THE SPEEDIEST WETTING AGENT AVAILABLE FOR TEXTILE PROCESSING

DECERESOL* OT is shipped to you in liquid form for convenience in handling and for instantaneous addition to the wet processing bath without preliminary make-up or manipulation. You are assured of speed in application, saving in time and labor.

The remarkable wetting, penetrating, dispersing, and dye leveling properties of DECERESOL OT also mean speed in processing and better results. There are at least thirty different ways DECERESOL OT will save you time, cut costs, and improve production.

Write to Cyanamid for complete information or ask our representative to assist you in using DECERESOL Wetting Agents for dyeing all types of fibers.

• • •

DECERESOL OT *is shipped in standard 55-gallon stainless steel drums having an exact net weight of 450 pounds, or in 12-gallon boxed carboys with an exact net weight of 100 pounds.*

AMERICAN CYANAMID
& CHEMICAL CORPORATION
(A Unit of American Cyanamid Company)
30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

MANUFACTURERS OF
SULPHONATED OILS • PENETRANTS • SOFTENERS
FINISHES • SIZING COMPOUNDS • DECERESOL* OT
WETTING AGENTS AND OTHER SPECIALTIES FOR THE TEXTILE INDUSTRY.

**Reg. U. S. Pat. Off.*